THE

BOTANIC GARDEN.

PART II.



FLORA at play with CUPID.

THE

BOTANIC GARDEN.

PART II.

CONTAINING

THE LOVES OF THE PLANTS.

A POEM.

WITH

Philosophical Notes.

VIVUNT IN VENEREM FRONDES; NEMUS OMNE PER ALTUM
FELIX ARBOR AMAT; NUTANT AD MUTUA PALMÆ
FÆDERA, POPULEO SUSPIRAT POPULUS ICTU,
ET PLATANI PLATANIS, ALNOQUE ASSIBILAT ALNUS. CLAUD. EPITH.

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MDCCXCIV.

PREFACE.

LINNEUS has divided the vegetable world into 24 Claſſes; theſe Claſſes into about 120 Orders; theſe Orders contain about 2000 Families, or Genera; and theſe Families about 20,000 Species; beſides the innumerable Varieties, which the accidents of climate or cultivation have added to theſe Species.

The Claſſes are diſtinguiſhed from each other in this ingenious ſyſtem, by the number, ſituation, adheſion, or reciprocal proportion of the males in each flower. The Orders, in many of theſe Claſſes, are diſtinguiſhed by the number, or other circumſtances of the females. The Families, or Genera, are characterized by the analogy of all the parts of the flower or fructification. The Species are diſtinguiſhed by the foliage of the plant; and the Varieties by any accidental circumſtance of colour, taſte, or odour; the ſeeds of theſe do not always produce plants ſimilar to the parent; as in our numerous fruit-trees and garden flowers; which are propagated by grafts or layers.

The firſt eleven Claſſes include the plants, in whoſe flowers both the ſexes reſide; and in which the Males or Stamens are neither united, nor unequal in height when at maturity; and are therefore diſtinguiſhed from each other ſimply by the number of males in each flower, as is ſeen in the annexed PLATE, copied from the Dictionaire Botanique of M. BULLIARD, in which the numbers of each diviſion refer to the Botanic Claſſes.

CLASS I. ONE MALE, *Monandria*; includes the plants which poſſeſs but One Stamen in each flower.

II. TWO MALES, *Diandria.* Two Stamens.

III. THREE MALES, *Triandria.* Three Stamens.

IV. FOUR MALES, *Tetrandria.* Four Stamens.

V. FIVE MALES. *Petandria.* Five Stamens.

VI. SIX MALES, *Hexandria.* Six Stamens.

VII. SEVEN MALES, *Heptandria.* Seven Stamens.

VIII. EIGHT MALES, *Octandria.* Eight Stamens.

IX. NINE MALES, *Enneandria.* Nine Stamens.

X. TEN MALES, *Decandria.* Ten Stamens.

XI. TWELVE MALES, *Dodecandria.* Twelve Stamens.

The next two Claſſes are diſtinguiſhed not only by the number of equal and diſunited males, as in the above eleven Claſſes, but require an additional circumſtance to be attended to, *viz.* whether the males or ſtamens be ſituated on the calyx, or not.

XII. TWENTY MALES, *Icoſandria.* Twenty Stamens inſerted on the calyx or flower-cup; as is well ſeen in the laſt Figure of No. xii. in the annexed Plate.

XIII. MANY MALES, *Polyandria.* From 20 to 100 Stamens, which do not adhere to the calyx; as is well ſeen in the firſt Figure of No. xiii. in the annexed Plate.

In the next two Claſſes, not only the number of ſtamens are to be obſerved, but the reciprocal proportions in reſpect to height.

XIV. TWO POWERS, *Didynamia.* Four Stamens, of which two are lower than the other two; as is ſeen in the two firſt Figures of No. xiv.

XV. FOUR POWERS, *Tetradynamia.* Six Stamens; of which four are taller, and the two lower ones oppoſite to each other; as is ſeen in the third Figure of the upper row in No. xv.

The five fubfequent Claffes are diftinguifhed not by the number of the males, or ftamens, but by their union or adhefion, either by their anthers, or filaments, or to the female or piftil.

XVI. ONE BROTHERHOOD, *Monadelphia.* Many Stamens united by their filaments into one company; as in the fecond Figure below of No. xvi.

XVII. TWO BROTHERHOODS, *Diadelphia.* Many Stamens united by their filaments into two Companies: as in the uppermoft Fig. No. xvii.

XVIII. MANY BROTHERHOODS, *Polyadelphia.* Many Stamens united by their filaments into three or more companies, as in No. xviii.

XIX. CONFEDERATE MALES, *Syngenefia.* Many Stamens united by their anthers; as in the firft and fecond Figures, No. xix.

XX. FEMININE MALES, *Gynandria.* Many Stamens attached to the piftil.

The next three Claffes confift of plants, whofe flowers contain but one of the fexes; or if fome of them contain both fexes, there are other flowers accompanying them of but one fex.

XXI. ONE HOUSE, *Monœcia.* Male flowers and female flowers feparate, but on the fame plant.

XXII. TWO HOUSES, *Diœcia.* Male flowers and female flowers feparate, on different plants.

XXIII. POLYGAMY, *Polygamia.* Male and female flowers on one or more plants, which have at the fame time flowers of both fexes.

The laft Clafs contains the plants whofe flowers are not difcernible.

XXIV. CLANDESTINE MARRIAGE, *Cryptogamia.*

The Orders of the firft thirteen Claffes are founded on the number of Females, or Piftils, and diftinguifhed by the names, ONE

FEMALE, *Monogynia*. TWO FEMALES, *Digynia*. THREE FEMALES, *Trigynia*, *&c.* as is ſeen in No. i. which repreſents a plant of one male, one female; and in the firſt figure of No. xi. which repreſents a flower with twelve males, and three females; (for, where the piſtils have no apparent ſtyles, the ſummits, or ſtigmas, are to be numbered) and in the firſt figure of No. xii. which repreſents a flower with twenty males and many females; and in the laſt Figure of the ſame No. which has twenty males and one female; and in No. xiii. which repreſents a flower with many males and many females.

The Claſs of TWO POWERS is divided into two natural Orders; into ſuch as have their ſeeds naked at the bottom of the calyx, or flower cup; and ſuch as have their ſeeds covered; as is ſeen in No. xiv. Fig. 3. and 5.

The Claſs of FOUR POWERS is divided alſo into two Orders; in one of theſe the ſeeds are incloſed in a ſilicule, as in *Shepherd's-purſe*. No. xv. Fig. 5. In the other they are incloſed in a ſilique, as in *Wall-flower*. Fig. 4.

In all the other Claſſes, excepting the Claſſes Confederate Males, and Clandeſtine Marriage, as the character of each Claſs is diſtinguiſhed by the ſituations of the males; the character of the Orders is marked by the numbers of them. In the Claſs ONE BROTHERHOOD, No. xvi. Fig. 3. the Order of ten males is repreſented. And in the Claſs TWO BROTHERHOODS, No. xvii. Fig. 2. the Order ten males is repreſented.

In the Claſs CONFEDERATE MALES, the Orders are chiefly diſtinguiſhed by the fertility or barrenneſs of the florets of the diſk, or ray of the compound flower.

And in the Clafs of CLANDESTINE MARRIAGE, the four Orders are termed FERNS, MOSSES, FLAGS, and FUNGUSSES.

The Orders are again divided into Genera, or Families, which are all natural affociations, and are defcribed from the general refemblances of the parts of fructification, in refpect to their number, form, fituation, and reciprocal proportion. Thefe are the Calyx, or Flower-cup, as feen in No. iv. Fig. 1. No. x. Fig. 1. and 3. No. xiv. Fig. 1. 2. 3. 4. Second, the Corol, or Bloffom, as feen in No. i. ii. &c. Third, the Males or Stamens, as in No. iv. Fig. 1. and No. viii. Fig. 1. Fourth, the Females, or Piftils, as in No. i. No. xii. Fig. 1. No. xiv. Fig. 3. No. xv. Fig. 3. Fifth, the Pericarp or Fruit-veffel, as No. xv. Fig. 4. 5. No. xvii. Fig. 2. Sixth, the Seeds.

The illuftrious author of the Sexual Syftem of Botany, in his preface to his account of the Natural Orders, ingenioufly imagines, that one plant of each Natural Order was created in the beginning; and that the intermarriages of thefe produced one plant of every Genus, or Family: and that the intermarriages of thefe Generic, or Family plants, produced all the fpecies: and laftly, that the intermarriages of the individuals of the Species produced the Varieties.

In the following POEM, the name or number of the Clafs or Order of each plant is printed in italics; as "*Two* brother fwains." "*One* Houfe contains them." and the word "*fecret.*" expreffes the Clafs of Clandeftine Marriage.

The Reader, who wifhes to become further acquainted with this delightful field of fcience, is advifed to ftudy the works of the Great Mafter, and is apprized that they are exactly and literally tranflated into Englifh, by a Society at LICHFIELD, in four Volumes Octavo.

To the SYSTEM OF VEGETABLES* is prefixed a copious explanation of all the Terms uſed in Botany, tranſlated from a theſis of Dr. ELMSGREEN, with the plates and references from the Philoſophia Botanica of LINNEUS.

To the FAMILIES OF PLANTS† is prefixed a Catalogue of the names of plants, and other Botanic Terms, carefully accented, to ſhew their proper pronunciation; a work of great labour, and which was much wanted, not only by beginners, but by proficients in BOTANY.

* *The SYSTEM OF VEGETABLES tranſlated from the Syſtema Vegetabilium*, in two Vols. is ſold by LEIGH and SOTHEBY, *York Street, Covent Garden:* Price eighteen Shillings, in Boards.

† *The FAMILIES OF PLANTS tranſlated from the Genera Plantarum*, in two Vols. by JOHNSON, *St. Paul's Church-Yard, London:* Price ſixteen Shillings, in Boards.

PROEM.

GENTLE READER!

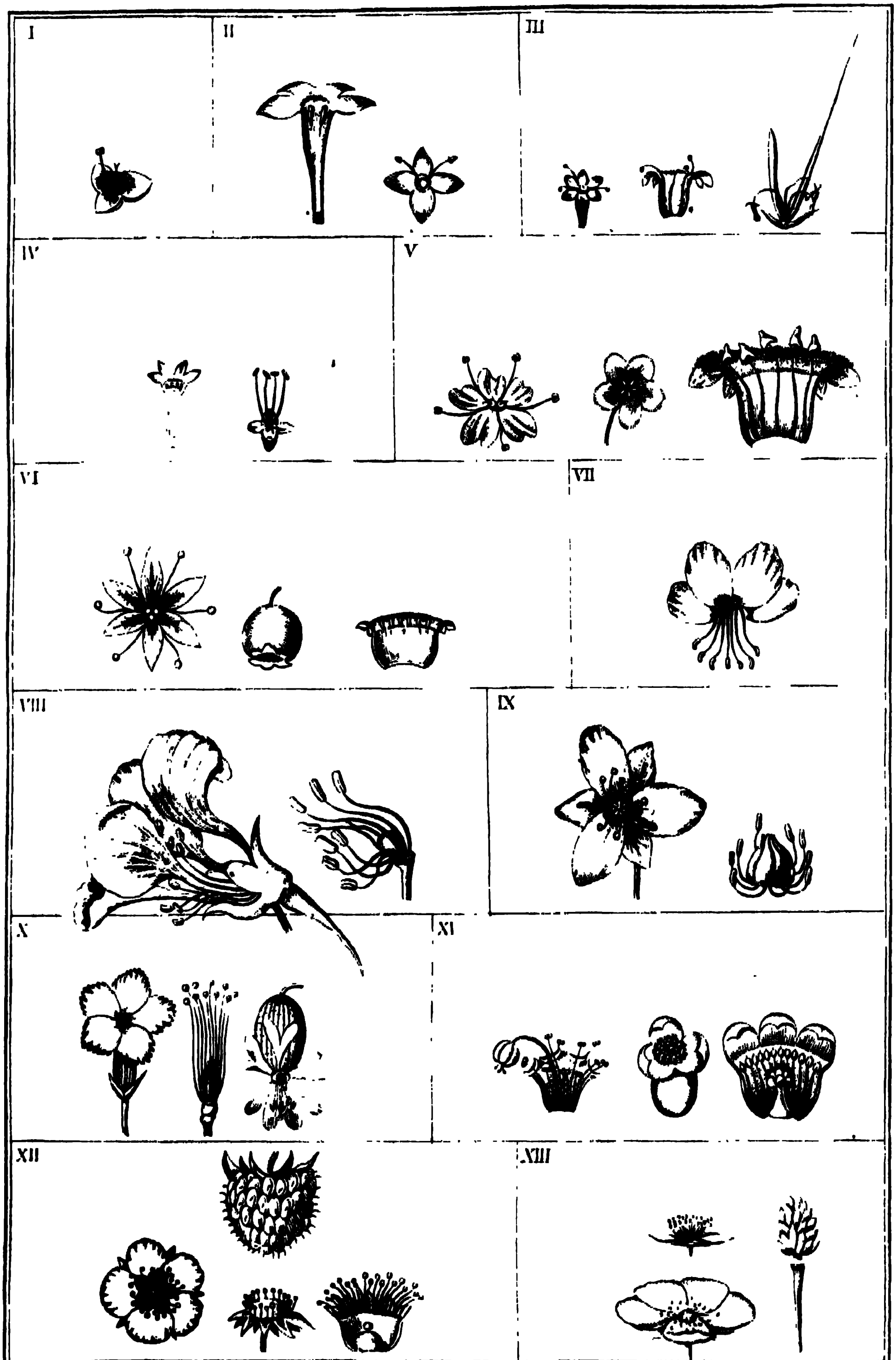
LO, here a CAMERA OBSCURA is presented to thy view, in which are lights and shades dancing on a whited canvas, and magnified into apparent life!--- if thou art perfectly at leasure for such trivial amusement, walk in, and view the wonders of my INCHANTED GARDEN.

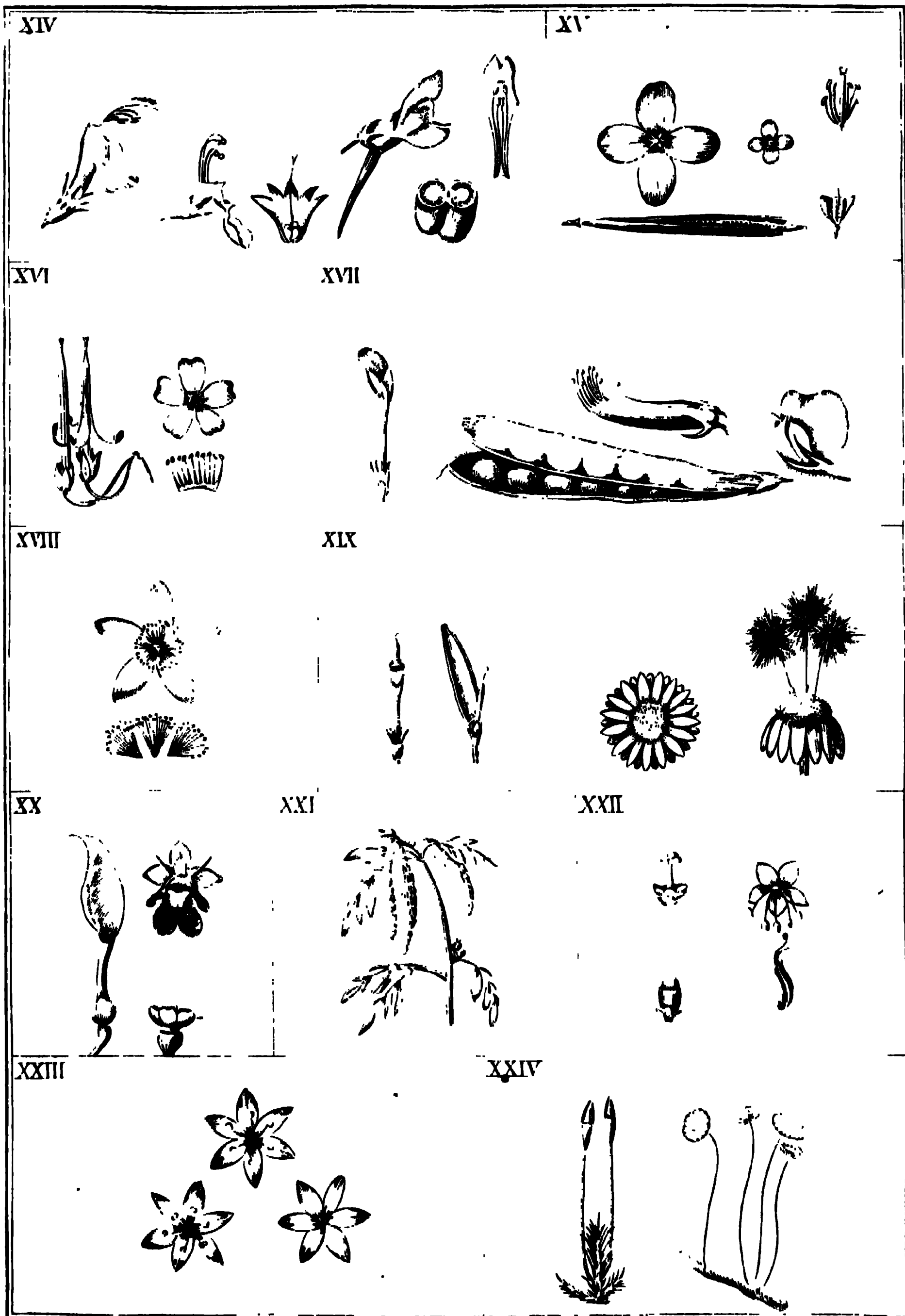
Whereas P. OVIDIUS NASO, a great Necromancer in the famous Court of AUGUSTUS CÆSAR, did by art poetic transmute Men, Women, and even Gods and Goddesses, into Trees and Flowers; I have undertaken by similar art to restore some of them to their original animality, after having remained prisoners so long in their respective vegetable mansions; and have here exhibited them before

thee. Which thou may'ſt contemplate as diverſe little pictures ſuſpended over the chimney of a Lady's dreſſing room, *connected only by a ſlight feſtoon of ribbons*. And which, though thou may'ſt not be acquainted with the originals, may amuſe thee by the beauty of their perſons, their graceful attitudes, or the brilliancy of their dreſs.

FAREWELL.




I
II
III
IV
V
VI
VII
VIII
IX
X
XI
XII
XIII



XIV
XV
XVI
XVII
XVIII
XIX
XX
XXI
XXII
XXIII
XXIV

THE

LOVES OF THE PLANTS.

CANTO I.

DESCEND, ye hovering Sylphs! aerial Quires,
And ſweep with little hands your ſilver lyres;
With fairy footſteps print your graſſy rings,
Ye Gnomes! accordant to the tinkling ſtrings:
While in ſoft notes I tune to oaten reed
Gay hopes, and amorous ſorrows of the mead.—
From giant Oaks, that wave their branches dark,
To the dwarf Moſs that clings upon their bark,

What Beaux and Beauties crowd the gaudy groves,
And woo and win their vegetable Loves.
How Snowdrops cold, and blue-eyed Harebels blend
Their tender tears, as o'er the ſtream they bend;
The love-ſick Violet, and the Primroſe pale,
Bow their ſweet heads, and whiſper to the gale;
With ſecret ſighs the Virgin Lily droops,
And jealous Cowſlips hang their tawny cups.
How the young Roſe in beauty's damaſk pride
Drinks the warm bluſhes of his baſhful bride;
With honey'd lips enamour'd Woodbines meet,
Claſp with fond arms, and mix their kiſſes ſweet.—

Stay thy ſoft-murmuring waters, gentle Rill;
Huſh, whiſpering Winds; ye ruſtling Leaves be ſtill;
Reſt, ſilver Butterflies, your quivering wings;
Alight, ye Beetles, from your airy rings;

Vegetable Loves. l. 10. Linneus, the celebrated Swediſh naturaliſt, has demonſtrated, that all flowers contain families of males or females, or both; and on their marriages has conſtructed his invaluable ſyſtem of Botany.

Ye painted Moths, your gold-eyed plumage furl,
Bow your wide horns, your ſpiral trunks uncurl;
Glitter, ye Glow-worms, on your moſſy beds;
Deſcend, ye Spiders, on your lengthened threads;
Slide here, ye horned Snails, with varniſh'd ſhells;
Ye Bee-nymphs, liſten in your waxen cells!

BOTANIC MUSE! who in this latter age
Led by your airy hand the Swediſh ſage,
Bade his keen eye your ſecret haunts explore
On dewy dell, high wood, and winding ſhore;
Say on each leaf how tiny Graces dwell;
How laugh the Pleaſures in a bloſſom's bell;
How inſect Loves ariſe on cobweb wings,
Aim their light ſhafts, and point their little ſtings.

" Firſt the tall CANNA lifts his curled brow
Erect to heaven, and plights his nuptial vow;

Canna. l. 39. Cane, or Indian Reed. One male and one female inhabit each flower. It is brought from between the tropics to our hot-houſes, and bears a beautiful crimſon flower; the ſeeds are uſed as ſhot by the Indians, and are ſtrung for prayer-beads in ſome Catholic countries.

The virtuous pair, in milder regions born,
Dread the rude blaſt of Autumn's icy morn;
Round the chill fair he folds his crimſon veſt,
And claſps the timorous beauty to his breaſt.

Thy love, CALLITRICHE, *two* Virgins ſhare,
Smit with thy ſtarry eye and radiant hair;—
On the green margin ſits the youth, and laves
His floating train of treſſes in the waves;
Sees his fair features paint the ſtreams that paſs,
And bends for ever o'er the watery glaſs.

Two brother ſwains, of COLLIN's gentle name,
The ſame their features, and their forms the ſame,

Callitriche. l. 45. Fine-hair, Stargraſs. One male and two females inhabit each flower. The upper leaves grow in form of a ſtar, whence it is called Stellaria Aquatica by Ray and others; its ſtems and leaves float far on the water, and are often ſo matted together, as to bear a perſon walking on them. The male ſometimes lives in a ſeparate flower.

Collinſonia. l. 51. Two males one female. I have lately obſerved a very ſingular circumſtance in this flower; the two males ſtand widely diverging from each other, and the female bends herſelf into contact firſt with one of them, and after ſome time leaves this and applies herſelf to the other. It is probable one of the anthers may be mature before

With rival love for fair COLLINIA ſigh,
Knit the dark brow, and roll the unſteady eye.
With ſweet concern the pitying beauty mourns,
And ſooths with ſmiles the jealous pair by turns.

Sweet blooms GENISTA in the myrtle ſhade,
And *ten* fond brothers woo the haughty maid.

the other. See note on Glorioſa, and Geniſta. The females in Nigella, devil in the buſh, are very tall compared to the males; and bending over in a circle to them, give the flower ſome reſemblance to a regal crown. The female of the Epilobium Anguſtifolium, roſe bay willow herb, bends down amongſt the males for ſeveral days, and becomes upright again when impregnated.

Geniſta. l. 57. Dyer's broom. Ten males and one female inhabit this flower. The males are generally united at the bottom in two ſets, whence Linneus has named the claſs "two brotherhoods." In the Geniſta, however, they are united in but one ſet. The flowers of this claſs are called papilionaceous, from their reſemblance to a butterfly, as the pea-bloſſom. In the Spartium Scoparium, or common broom, I have lately obſerved a curious circumſtance, the males or ſtamens are in two ſets, one ſet riſing a quarter of an inch above the other; the upper ſet does not arrive at their maturity ſo ſoon as the lower, and the ſtigma, or head of the female, is produced amongſt the upper or immature ſet; but as ſoon as the piſtil grows tall enough to burſt open the keel-leaf, or hood of the flower, it bends itſelf round in an inſtant, like a French horn, and inſerts its head, or ſtigma, amongſt the lower or mature ſet of males. The piſtil, or female, continues to grow in length; and in a few days the ſtigma arrives again amongſt the upper ſet, by the time they become mature. This wonderful contrivance is readily ſeen by opening the keel leaf of the flowers of broom before they burſt ſpontaneouſly. See note on Collinſonia, Glorioſa, Draba.

Two knights before thy fragrant altar bend,
Adored MELISSA! and *two* ſquires attend.
MEADIA's ſoft chains *five* ſuppliant beaux confeſs,
And hand in hand the laughing belle addreſs;
Alike to all, ſhe bows with wanton air,
Rolls her dark eye, and waves her golden hair.

Meliſſa. l. 60. Balm. In each flower there are four males and one female; two of the males ſtand higher than the other two; whence the name of the claſs "two powers." I have obſerved in the Ballota, and others of this claſs, that the two lower ſtamens, or males, become mature before the two higher. After they have ſhed their duſt, they turn themſelves away outwards, and the piſtil, or female, continuing to grow a little taller, is applied to the upper ſtamens. See Glorioſa and Geniſta.

All the plants of this claſs, which have naked ſeeds, are aromatic. The Marum and Nepeta are particularly delightful to cats; no other brute animals ſeem delighted with any odours but thoſe of their food or prey.

Meadia. l. 61. Dodecatheon, American Cowſlip. Five males and one female. The males, or anthers, touch each other. The uncommon beauty of this flower occaſioned Linneus to give it a name ſignifying the twelve heathen gods; and Dr. Mead to affix his own name to it. The piſtil is much longer than the ſtamens, hence the flower-ſtalks have their elegant bend, that the ſtigma may hang downwards to receive the fecundating duſt of the anthers. And the petals are ſo beautifully turned back to prevent the rain or dew-drops from ſliding down and waſhing off this duſt prematurely; and at the ſame time expoſing it to the light and air. As ſoon as the ſeeds are formed, it erects all the flower-ſtalks to prevent them from falling out, and thus loſes the beauty of its figure. Is this a mechanical effect, or does it indicate a vegetable ſtorgé to preſerve its offspring? See note on Ilex, and Glorioſa.

In the Meadia, the Borago, Cyclamen, Solanum, and many others, the filaments are very ſhort compared with the ſtyle. Hence it became neceſſary, 1ſt, to furniſh the ſtamens



Engraved by F. P. Nodder

Meadia

Woo'd with long care, CURCUMA, cold and ſhy,
Meets her fond huſband with averted eye:
Four beardleſs youths the obdurate beauty move
With ſoft attentions of Platonic love.

with long anthers. 2d. To lengthen and bend the peduncle or flower-ſtalk, that the flower might hang downwards. 3d. To reflect the petals. 4th. To erect theſe peduncles when the germ was fecundated. We may reaſon upon this by obſerving, that all this apparatus might have been ſpared, if the filaments alone had grown longer; and that thence in theſe flowers that the filaments are the moſt unchangeable parts; and that thence their comparative length, in reſpect to the ſtyle, would afford a moſt permanent mark of their generic character.

Curcuma. l. 65. Turmeric. One male and one female inhabit this flower; but there are beſides four imperfect males, or filaments without anthers upon them, called by Linneus eunuchs. The flax of our country has ten filaments, and but five of them are terminated with anthers; the Portugal flax has ten perfect males or ſtamens; the Verbena of our country has four males; that of Sweden has but two; the genus Albuca, the Bignonia Catalpa, Gratiola, and hemlock-leaved Geranium, have only half their filaments crowned with anthers. In like manner the florets, which form the rays of the flowers of the order fruſtraneous polygamy of the claſs ſyngeneſia, or confederate males, as the ſun-flower, are furniſhed with a ſtyle only, and no ſtigma: and are thence barren. There is alſo a ſtyle without a ſtigma in the whole order diœcia gynandria; the male flowers of which are thence barren. The Opulus is another plant, which contains ſome unprolific flowers. In like manner ſome tribes of inſects have males, females, and neuters among them; as bees, waſps, ants.

There is a curious circumſtance belonging to the claſs of inſects which have two wings, or diptera, analogous to the rudiments of ſtamens above deſcribed; viz. two little knobs are found placed each on a ſtalk or peduncle, generally under a little arched ſcale; which appear to be rudiments of hinder wings, and are called by Linneus halteres, or poiſers, a term of his introduction. A. T. Bladh. Amæn. Acad. V. 7. Other animals have marks of having in a long proceſs of time undergone changes in ſome parts of their bodies, which may have been effected to accommodate them to new ways of procuring their food. The exiſtence of teats on the breaſts of male animals, and which are gene-

With vain deſires the penſive ALCEA burns,
And, like ſad ELOISA, loves and mourns.
The freckled IRIS owns a fiercer flame,
And *three* unjealous huſbands wed the dame.

rally replete with a thin kind of milk at their nativity, is a wonderful inſtance of this kind. Perhaps all the productions of nature are in their progreſs to greater perfection? an idea countenanced by the modern diſcoveries and deductions concerning the progreſſive formation of the ſolid parts of the terraqueous globe, and conſonant to the dignity of the Creator of all things.

Alcea. l. 69. Flore pleno. Double hollyhock. The double flowers, ſo much admired by the floriſts, are termed by the botaniſt vegetable monſters; in ſome of theſe the petals are multiplied three or four times, but without excluding the ſtamens, hence they produce ſome ſeeds, as Campanula and Stramoneum; but in others the petals become ſo numerous as totally to exclude the ſtamens or males: as Caltha, Peonia, and Alcea; theſe produce no ſeeds, and are termed eunuchs. Philoſ. Botan. No. 150.

Theſe vegetable monſters are formed in many ways: 1ſt. By the multiplication of the petals and the excluſion of the nectaries, as in larkſpur. 2d. By the multiplication of the nectaries and excluſion of the petals, as in columbine. 3d. In ſome flowers growing in cymes, the wheel-ſhape flowers in the margin are multiplied to the excluſion of the bell-ſhape flowers in the centre, as in gelder-roſe. 4th. By the elongation of the florets in the centre. Inſtances of both theſe are found in daiſy and feverfew; for other kinds of vegetable monſters, ſee Plantago.

The perianth is not changed in double flowers, hence the genus or family may be often diſcovered by the calyx, as in Hepatica, Ranunculus, Alcea. In thoſe flowers, which have many petals, the loweſt ſeries of the petals remains unchanged in reſpect to number; hence the natural number of the petals is eaſily diſcovered. As in poppies, roſes, and Nigella, or devil in a buſh. Phil. Bot. p. 128.

Iris. l. 71. Flower de Luce. Three males, one female. Some of the ſpecies have a beautifully freckled flower; the large ſtigma or head of the female covers the three males, counterfeiting a petal with its diviſions.

CUPRESSUS dark diſdains his duſky bride,
One dome contains them, but *two* beds divide.
The proud OSYRIS flies his angry fair,
Two houſes hold the faſhionable pair.

Cupreſſus. l. 73. Cypreſs. One houſe. The males live in ſeparate flowers, but on the ſame plant. The males of ſome of theſe plants, which are in ſeparate flowers from the females, have an elaſtic membrane; which diſperſes their duſt to a conſiderable diſtance, when the anthers burſt open. This duſt, on a fine day, may often be ſeen like a cloud hanging round the common nettle. The males and females of all the cone-bearing plants are in ſeparate flowers, either on the ſame or on different plants; they produce reſins, and many of them are ſuppoſed to ſupply the moſt durable timber: what is called Venice-turpentine is obtained from the larch by wounding the bark about two feet from the ground, and catching it as it exſudes; Sandarach is procured from common juniper; and incenſe from a juniper with yellow fruit. The unperiſhable cheſts, which contain the Egyptian mummies, were of Cypreſs; and the Cedar, with which black-lead pencils are covered, is not liable to be eaten by worms. See Miln's Bot. Dict. art. coniferæ. The gates of St. Peter's church at Rome, which had laſted from the time of Conſtantine to that of Pope Eugene the Fourth, that is to ſay, eleven hundred years, were of Cypreſs, and had in that time ſuffered no decay. According to Thucydides, the Athenians buried the bodies of their heroes in coffins of Cypreſs, as being not ſubject to decay. A ſimilar durability has alſo been aſcribed to Cedar. Thus Horace,

———— *ſperamus carmina fingi*
Poſſe linenda cedro & levi ſervanda cupreſſo.

Oſyris. l. 75. Two houſes. The males and females are on different plants. There are many inſtances on record, where female plants have been impregnated at very great diſtance from their male; the duſt diſcharged from the anthers is very light, ſmall, and copious, ſo that it may ſpread very wide in the atmoſphere, and be carried to the diſtant piſtils, without the ſuppoſition of any particular attraction; theſe plants reſemble ſome inſects, as the ants, and cochineal inſect, of which the males have wings, but not the female.

With ſtrange deformity PLANTAGO treads,
A monſter-birth! and lifts his hundred heads;
Yet with ſoft love a gentle belle he charms,
And claſps the beauty in his hundred arms.
So hapleſs DESDEMONA, fair and young,
Won by OTHELLO's captivating tongue,
Sigh'd o'er each ſtrange and piteous tale, diſtreſs'd,
And ſunk enamour'd on his ſooty breaſt.

Two gentle ſhepherds and their ſiſter-wives
With thee, ANTHOXA! lead ambroſial lives;

Plantago. l. 77. Roſea. Roſe-Plantain. In this vegetable monſter the bractes, or diviſions of the ſpike, become wonderfully enlarged; and are converted into leaves. The chaffy ſcales of the calyx in Xeranthemum, and in a ſpecies of Dianthus, and the glume in ſome alpine graſſes, and the ſcales of the ament in the Salix Roſea, roſe willow, grow into leaves; and produce other kinds of monſters. The double flowers become monſters by the multiplication of their petals or nectaries. See note on Alcea.

Anthoxanthum. l. 83. Vernal graſs. Two males, two females. The other graſſes have three males and two females. The flowers of this graſs give the fragrant ſcent to hay. I am informed it is frequently vivaporous, that is, that it bears ſometimes roots or bulbs inſtead of ſeeds, which after a time drop off and ſtrike root into the ground. This circumſtance is ſaid to obtain in many of the alpine graſſes, whoſe ſeeds are perpetually devoured by ſmall birds. The Feſtuca Dumetorum, feſcue graſs of the buſhes, produces bulbs from the ſheaths of its ſtraw. The Allium Magicum, or magical onion, produces

Where the wide heath in purple pride extends,
And ſcatter'd furze its golden luſtre blends,
Cloſed in a green receſs, unenvy'd lot!
The blue ſmoak riſes from their turf-built cot;
Boſom'd in fragrance bluſh their infant train,
Eye the warm ſun, or drink the ſilver rain.

The fair **Osmunda** ſeeks the ſilent dell,
The ivy canopy, and dripping cell;
There hid in ſhades *clandeſtine* rites approves,
Till the green progeny betrays her loves.

onions on its head, inſtead of ſeeds. The Polygonum Viviparum, viviparous biſtort, riſes about a foot high, with a beautiful ſpike of flowers, which are ſucceeded by buds or bulbs, which fall off and take root. There is a buſh frequently ſeen on birch-trees, like a bird's neſt, which ſeems to be a ſimilar attempt of nature to produce another tree; which falling off, might take root in ſpongy ground.

There is an inſtance of this double mode of production in the animal kingdom, which is equally extraordinary, the ſame ſpecies of Aphis is viviparous in ſummer, and oviparous in autumn. A. T. Bladh. Amæn. Acad. V. 7.

Oſmunda. l. 93. This plant grows on moiſt rocks; the parts of its flower or its ſeeds are ſcarce diſcernible; whence Linneus has given the name of clandeſtine marriage to this claſs. The younger plants are of a beautiful vivid green.

With charms deſpotic fair CHONDRILLA reigns
O'er the ſoft hearts of *five* fraternal ſwains;
If ſighs the changeful nymph, alike they mourn;
And, if ſhe ſmiles, with rival raptures burn.
So, tun'd in uniſon, Eolian Lyre!
Sounds in ſweet ſymphony thy kindred wire;
Now, gently ſwept by Zephyr's vernal wings,
Sink in ſoft cadences the love-ſick ſtrings;
And now with mingling chords, and voices higher,
Peal the full anthems of the aërial choir.

Five ſiſter-nymphs to join Diana's train
With thee, fair LYCHNIS! vow,—but vow in vain;

Chondrilla. l. 97. Of the claſs Confederate Males. The numerous florets, which conſtitute the diſk of the flowers in this claſs, contain in each five males ſurrounding one female, which are connected at top, whence the name of the claſs. An Italian writer, in a diſcourſe on the irritability of flowers, aſſerts, that if the top of the floret be touched, all the filaments which ſupport the cylindrical anther will contract themſelves, and that by thus raiſing or depreſſing the anther the whole of the prolific duſt is collected on the ſtigma. He adds, that if one filament be touched after it is ſeparated from the floret, that it will contract like the muſcular fibres of animal bodies; his experiments were tried on the Centauréa Calcitrapoides, and on artichokes, and globe-thiſtles. Diſcourſe on irritability of plants. Dodſley.

Lychnis. l. 108. Ten males and five females. The flowers which contain the five females, and thoſe which contain the ten males, are found on different plants; and often

Beneath one roof reſides the virgin band,
Flies the fond ſwain, and ſcorns his offer'd hand;
But when ſoft hours on breezy pinions move,
And ſmiling May attunes her lute to love,
Each wanton beauty, trick'd in all her grace,
Shakes the bright dew-drops from her bluſhing face;
In gay undreſs diſplays her rival charms,
And calls her wondering lovers to her arms.

When the young Hours amid her tangled hair
Wove the freſh roſe-bud, and the lily fair,
Proud Glorioſa led *three* choſen ſwains,
The bluſhing captives of her virgin chains.—

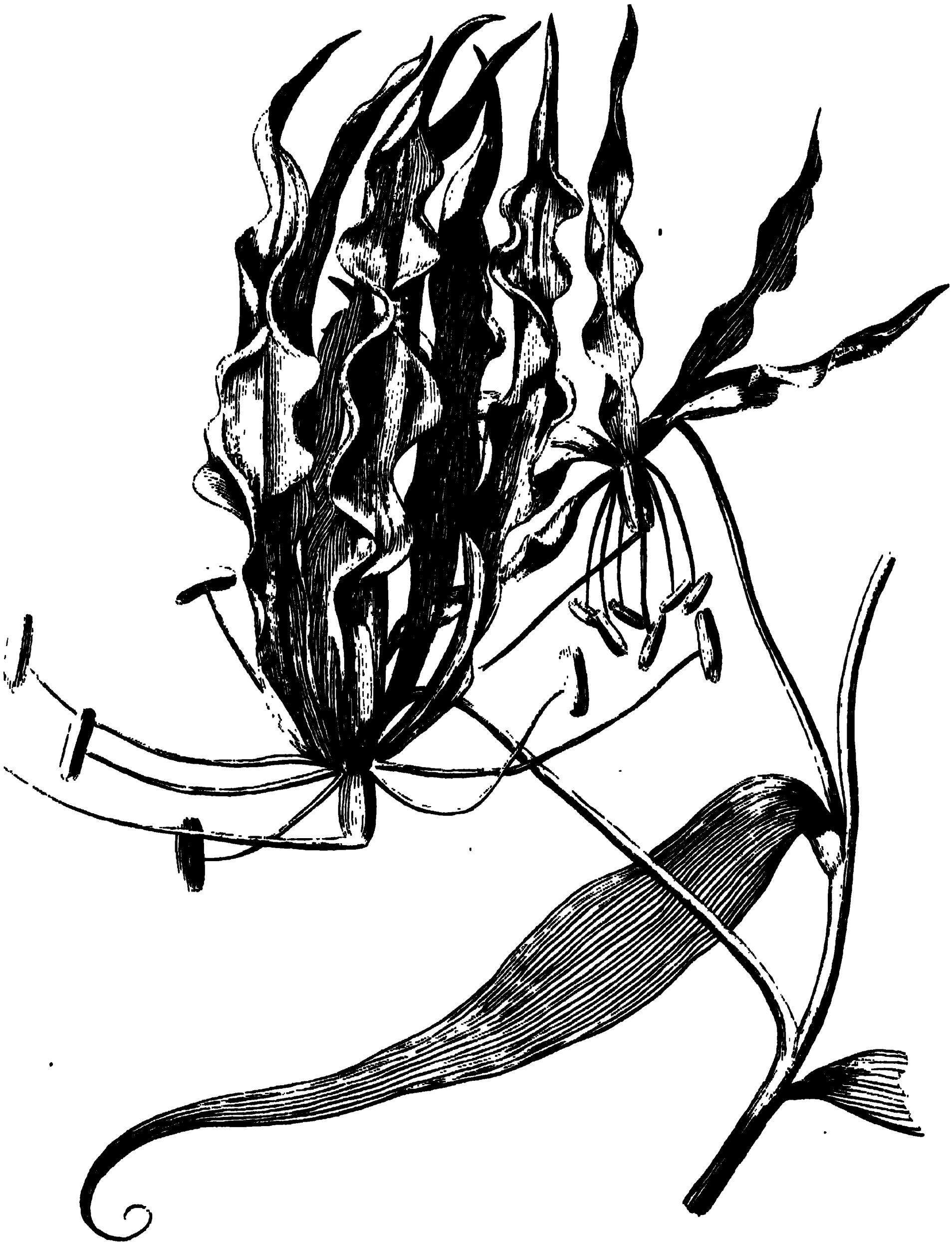
at a great diſtance from each other. Five of the ten males arrive at their maturity ſome days before the other five, as may be ſeen by opening the corol before it naturally expands itſelf. When the females arrive at their maturity, they riſe above the petals, as if looking abroad for their diſtant huſbands; the ſcarlet ones contribute much to the beauty of our meadows in May and June.

Glorioſa. l. 119. Superba. Six males, one female. The petals of this beautiful flower with three of the ſtamens, which are firſt mature, ſtand up in apparent diſorder; and the

— When Time's rude hand a bark of wrinkles ſpread
Round her weak limbs, and ſilver'd o'er her head,
Three other youths her riper years engage,
The flatter'd victims of her wily age.

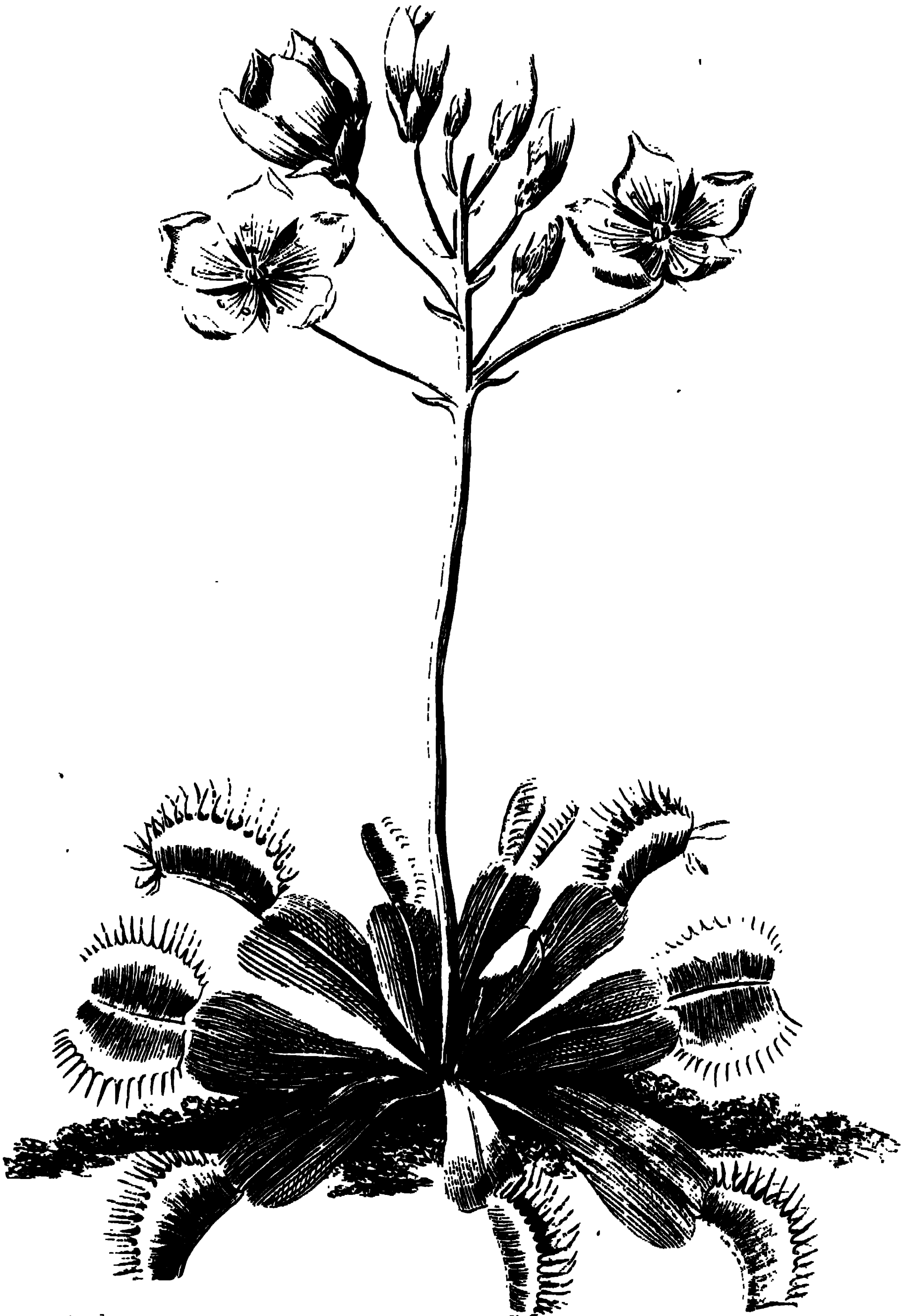
So, in her wane of beauty, NINON won
With fatal ſmiles her gay unconſcious ſon.—
Claſp'd in his arms ſhe own'd a mother's name,—
" Deſiſt, raſh youth! reſtrain your impious flame,

piſtil bends at nearly a right angle to inſert its ſtigma amongſt them. In a few days, as theſe decline, the other three ſtamens bend over, and approach the piſtil. In the Fritillaria Perſica, the ſix ſtamens are of equal lengths, and the anthers lie at a diſtance from the piſtil, and three alternate ones approach firſt; and, when theſe decline, the other three approach: in the Lithrum Salicaria, (which has twelve males and one female) a beautiful red flower, which grows on the banks of rivers, ſix of the males arrive at maturity, and ſurround the female ſome time before the other ſix; when theſe decline, the other ſix riſe up, and ſupply their places. Several other flowers have in a ſimilar manner two ſets of ſtamens of different ages, as Adoxa, Lychnis, Saxifraga. See Geniſta. Perhaps a difference in the time of their maturity obtains in all theſe flowers, which have numerous ſtamens. In the Kalmia the ten ſtamens lie round the piſtil like the radii of a wheel; and each anther is concealed in a nich of the corol to protect it from cold and moiſture; theſe anthers riſe ſeparately from their niches, and approach the piſtil for a time, and then recede to their former ſituations.



Gloriosa Superba.

Engraved by [illegible]



Engraved by W. P. Walker.

Dionæa . Muscipula.

" Firſt on that bed your infant form was preſs'd,
" Born by my throes, and nurtured at my breaſt."—
Back as from death he ſprung, with wild amaze
Fierce on the fair he fix'd his ardent gaze;
Dropp'd on one knee, his frantic arms outſpread,
And ſtole a guilty glance toward the bed;
Then breath'd from quivering lips a whiſper'd vow,
And bent on heaven his pale repentant brow;
" Thus, thus!" he cried, and plung'd the furious dart,
And life and love guſh'd mingled from his heart.

The fell SILENE, and her ſiſters fair,
Skill'd in deſtruction, ſpread the viſcous ſnare.
The harlot-band *ten* lofty bravoes ſcreen,
And, frowning, guard the magic nets unſeen.

Silene. l. 139. Catchfly. Three females and ten males inhabit each flower; the viſcous material, which ſurrounds the ſtalks under the flowers of this plant, and of the Cucūbalus Otites, is a curious contrivance to prevent various inſects from plundering the honey, or devouring the ſeed. In the Dionæa Muſcipula there is a ſtill more wonderful contrivance to prevent the depredations of inſects: the leaves are armed with long teeth, like the antennæ of inſects, and lie ſpread upon the ground round the ſtem; and

Haſte, glittering nations, tenants of the air,
Oh, ſteer from hence your viewleſs courſe afar!
If with ſoft words, ſweet bluſhes, nods, and ſmiles,
The *three* dread Syrens lure you to their toils,
Limed by their art, in vain you point your ſtings,
In vain the efforts of your whirring wings!—
Go, ſeek your gilded mates and infant hives,
Nor taſte the honey purchas'd with your lives!

When heaven's high vault condenſing clouds deform,
Fair AMARYLLIS flies the incumbent ſtorm.

are ſo irritable, that when an inſect creeps upon them, they fold up, and cruſh or pierce it to death. The laſt profeſſor Linneus, in his Supplementum Plantarum, gives the following account of the Arum Muſcivorum. The flower has the ſmell of carrion; by which the flies are invited to lay their eggs in the chamber of the flower, but in vain endeavour to eſcape, being prevented by the hairs pointing inwards; and thus periſh in the flower, whence its name of fly-eater. P. 411. In the Dypſacus is another contrivance for this purpoſe, a baſon of water is placed round each joint of the ſtem. In the Droſera is another kind of fly-trap. See Dypſacus and Droſera; the flowers of Siléne and Cucúbalus are cloſed all day, but are open and give an agreeable odour in the night. See Cerea. See additional notes at the end of the poem.

Amaryllis. l. 152. Formoſiſſima. Moſt beautiful Amaryllis. Six males, one female. Some of the bell-flowers cloſe their apertures at night, or in rainy or cold weather, as the convolvulus, and thus protect their included ſtamens and piſtils. Other bell-flowers



[illegible] by [illegible]

Amaryllis formosissima

Seeks with unſteady ſtep the ſhelter'd vale,
And turns her bluſhing beauties from the gale.—
Six rival youths, with ſoft concern impreſs'd,
Calm all her fears, and charm her cares to reſt.—
So ſhines at eve the ſun-illumin'd fane,
Lifts its bright croſs, and waves its golden vane:

hang their apertures downwards, as many of the lilies; in thoſe the piſtil, when at maturity, is longer than the ſtamens; and by this pendant attitude of the bell, when the anthers burſt, their duſt falls on the ſtigma; and theſe are at the ſame time ſheltered as with an umbrella from rain and dews. But, as a free expoſure to the air is neceſſary for their fecundation, the ſtyle and filaments in many of theſe flowers continue to grow longer after the bell is open, and hang down below its rim. In others, as in the Martagon, the bell is deeply divided, and the diviſions are reflected upwards, that they may not prevent the acceſs of air, and at the ſame time afford ſome ſhelter from perpendicular rain or dew. Other bell-flowers, as the Hemerocallis and Amaryllis, have their bells nodding only, as it were, or hanging obliquely towards the horizon; which, as their ſtems are ſlender, turn like a weathercock from the wind, and thus very effectually preſerve their incloſed ſtamens and anthers from the rain and cold. Many of theſe flowers, both before and after their ſeaſon of fecundation, erect their heads perpendicular to the horizon, like the Meadia, which cannot be explained from mere mechaniſm.

The Amaryllis Formoſiſſima is a flower of the laſt-mentioned kind, and affords an agreeable example of *art* in the vegetable economy. 1. The piſtil is of great length compared with the ſtamens; and this I ſuppoſe to have been the moſt unchangeable part of the flower, as in Meadia, which ſee. 2. To counteract this circumſtance, the piſtil and ſtamens are made to decline downwards, that the prolific duſt might fall from the anthers on the ſtigma. 3. To produce this effect, and to ſecure it when produced, the corol is lacerated, contrary to what occurs in other flowers of this genus, and the loweſt diviſion with the two next loweſt ones are wrapped cloſely over the ſtyle and filaments, binding them forcibly down lower towards the horizon than the uſual inclination of the bell in this genus, and thus conſtitutes a moſt elegant flower. There is another contrivance for this purpoſe in the Hemerocallis Flava: the long piſtil often is bent ſomewhat like the capital letter *N*, with deſign to ſhorten it, and thus to bring the ſtigma amongſt the anthers.

From every breeze the poliſh'd axle turns,
And high in air the dancing meteor burns.

Four of the giant brood with ILEX ſtand,
Each graſps a thouſand arrows in his hand;
A thouſand ſteely points on every ſcale
Form the bright terrors of his briſtly mail.—
So arm'd, immortal Moore uncharm'd the ſpell,
And ſlew the wily dragon of the well.—
Sudden with rage their *injur'd* boſoms burn,
Retort the inſult, or the wound return;
Unwrong'd, as gentle as the breeze that ſweeps
The unbending harveſts or undimpled deeps,
They guard, the Kings of Needwood's wide domains,
Their ſiſter-wives and fair infantine trains;

Ilex. l. 161. Holly. Four males, four females. Many plants, like many animals, are furniſhed with arms for their protection; theſe are either aculei, prickles, as in roſe and barberry, which are formed from the outer bark of the plant; or ſpinæ, thorns, as in hawthorn, which are an elongation of the wood, and hence more difficult to be torn off than the former; or ſtimuli, ſtings, as in the nettles, which are armed with a

Lead the lone pilgrim through the trackleſs glade,
Or guide in leafy wilds the wandering maid.

So WRIGHT's bold pencil from Veſuvio's hight
Hurls his red lavas to the troubled night;
From Calpe ſtarts the intolerable flaſh,
Skies burſt in flames, and blazing oceans daſh;—

venomous fluid for the annoyance of naked animals. The ſhrubs and trees, which have prickles or thorns, are grateful food to many animals, as gooſeberry and gorſe; and would be quickly devoured, if not thus armed; the ſtings ſeem a protection againſt ſome kinds of inſects, as well as the naked mouths of quadrupeds. Many plants loſe their thorns by cultivation, as wild animals loſe their ferocity; and ſome of them their horns. A curious circumſtance attends the large hollies in Needwood foreſt; they are armed with thorny leaves about eight feet high, and have ſmooth leaves above, as if they were conſcious that horſes and cattle could not reach their upper branches. See note on Meadia, and on Mancinella. The numerous clumps of hollies in Needwood foreſt ſerve as land-marks to direct the travellers acroſs it in various directions; and as a ſhelter to the deer and cattle in winter; and in ſcarce ſeaſons ſupply them with much food. For when the upper branches, which are without prickles, are cut down, the deer crop the leaves and peel off the bark. The bird-lime made from the bark of hollies ſeems to be a very ſimilar material to the elaſtic gum, or Indian rubber, as it is called. There is a foſſile elaſtic bitumen found at Matlock in Derbyſhire, which much reſembles theſe ſubſtances in its elaſticity and inflammability. The thorns of the Mimoſa Cornigera reſemble cow's horns in appearance as well as in uſe. Syſtem of Vegetables, p. 782.

Hurls his red lavas. l. 176. Alluding to the grand paintings of the eruptions of Veſuvius, and of the deſtruction of the Spaniſh veſſels before Gibraltar; and to the beautiful landſcapes and moonlight ſcenes, by Mr. Wright of Derby.

Or birds in ſweet repoſe his ſhades recede,
Winds the ſtill vale, and ſlopes the velvet mead;
On the pale ſtream expiring Zephyrs ſink,
And Moonlight ſleeps upon its hoary brink.

Gigantic Nymph! the fair KLEINHOVIA reigns,
The grace and terror of Orixa's plains;
O'er her warm cheek the bluſh of beauty ſwims,
And nerves Herculean bend her ſinewy limbs;
With frolic eye ſhe views the affrighted throng,
And ſhakes the meadows as ſhe towers along;
With playful violence diſplays her charms,
And bears her trembling lovers in her arms.

Kleinhovia. l. 183. In this claſs the males in each flower are ſupported by the female. The name of the claſs may be tranſlated "Viragoes," or "Feminine Males."

The largeſt tree perhaps in the world is of the ſame natural order as Kleinhovia; it is the Adanſonia, or Ethiopian Sour-gourd, or African Calabaſh-tree. Mr. Adanſon ſays the diameter of the trunk frequently exceeds 25 feet, aud the horizontal branches are from 45 to 55 feet long, and ſo large that each branch is equal to the largeſt trees of Europe. The breadth of the top is from 120 to 150 feet; and one of the roots bared only in part by the waſhing away of the earth from the river, near which it grew, meaſured 110 feet long; and yet theſe ſtupendous trees never exceed 70 feet in height. Voyage to Senegal.

So fair THALESTRIS ſhook her plumy creſt,
And bound in rigid mail her jutting breaſt;
Poiſed her long lance amid the walks of war,
And Beauty thunder'd from Bellona's car;
Greece arm'd in vain, her captive heroes wove
The chains of conqueſt with the wreaths of love.

When o'er the cultivated lawns and dreary waſtes
Retiring Autumn flings her howling blaſts,
Bends in tumultuous waves the ſtruggling woods,
And ſhowers their leafy honours on the floods,
In withering heaps collects the flowery ſpoil,
And each chill inſect ſinks beneath the ſoil;
Quick flies fair TULIPA the loud alarms,
And folds her infant cloſer in her arms;

Tulipa. l. 204. Tulip. What is in common language called a bulbous-root, is by Linneus termed the Hybernacle, or Winter-lodge of the young plant. As theſe bulbs in every reſpect reſemble buds, except in their being produced under ground, and include the leaves and flower in miniature, which are to be expanded in the enſuing ſpring. By cautiouſly cutting in winter through the concentric coats of a tulip-root, longitudinally from the top to the baſe, and taking them off ſucceſſively, the whole

In ſome lone cave, ſecure pavilion, lies,
And waits the courtſhip of ſerener ſkies.—
So, ſix cold moons, the Dormouſe charm'd to reſt,
Indulgent Sleep! beneath thy eider breaſt,
In fields of Fancy climbs the kernel'd groves,
Or ſhares the golden harveſt with his loves.—
Then bright from earth amid the troubled ſky
Aſcends fair COLCHICA with radiant eye,

flower of the next ſummer's tulip is beautifully ſeen by the naked eye, with its petals, piſtil, and ſtamens; the flowers exiſt in other bulbs, in the ſame manner, as in Hyacinths, but the individual flowers of theſe being leſs, they are not ſo eaſily diſſected, or ſo conſpicuous to the naked eye.

In the ſeeds of the Nymphæa Nelumbo, the leaves of the plant are ſeen ſo diſtinctly, that Mr. Ferber found out by them to what plant the ſeeds belonged. Amæn. Acad. V. vi. No. 120. He ſays that Mariotte firſt obſerved the future flower and foliage in the bulb of a Tulip; and adds, that it is pleaſant to ſee in the buds of the Hepatica and Pedicularis hirſuta, yet lying in the earth; and in the gems of Daphne Mezereon; and at the baſe of Oſmunda Lunaria, a perfect plant of the future year complete in all its parts. Ibid.

Colchicum autumnale. l. 212. Autumnal Meadow-ſaffron. Six males, three females. The germ is buried within the root, which thus ſeems to conſtitute a part of the flower. Families of Plants. p. 242. Theſe ſingular flowers appear in the autumn without any leaves, whence in ſome countries they are called Naked Ladies: in the March following the green leaves ſpring up, and in April the ſeed-veſſel riſes from the ground; the ſeeds ripen in May, contrary to the uſual habits of vegetables, which flower in the ſpring, and ripen their ſeeds in the autumn. Miller's Dict. The juice of the root of this plant is ſo acrid as to produce violent effects on the human conſtitution, which alſo prevents it from being eaten by ſubterranean inſects, and thus guards the ſeed-veſſel during the winter.

Warms the cold bosom of the hoary year,
And lights with Beauty's blaze the dusky sphere.
Three blushing Maids the intrepid Nymph attend,
And *six* gay Youths, enamour'd train! defend.
So shines with silver guards the Georgian star,
And drives on Night's blue arch his glittering car;
Hangs o'er the billowy clouds his lucid form,
Wades through the mist, and dances in the storm.

GREAT HELIANTHUS guides o'er twilight plains
In gay solemnity his Dervise-trains;

The defoliation of deciduous trees is announced by the flowering of the Colchicum; of these the ash is the last that puts forth its leaves, and the first that loses them. Phil. Bot. p. 275.

The Hamamelis, Witch Hazle, is another plant which flowers in autumn; when the leaves fall off, the flowers come out in clusters from the joints of the branches, and in Virginia ripen their seed in the ensuing spring; but in this country their seeds seldom ripen. Lin. Spec. Plant. Miller's Dict.

Helianthus. l. 221. Sun flower. The numerous florets which constitute the disk of this flower, contain in each five males surrounding one female, the five stamens have their anthers connected at top, whence the name of the class "confederate males;" see note on Chondrilla. The sun-flower follows the course of the sun by nutation, not by twisting its stem. (Hales veg. stat.) Other plants, when they are confined in a room, turn the shining surface of their leaves, and bend their whole branches to the light. See Mimosa.

Marſhall'd in *fives* each gaudy band proceeds,
Each gaudy band a plumed Lady leads;
With zealous ſtep he climbs the upland lawn,
And bows in homage to the riſing dawn;
Imbibes with eagle eye the golden ray,
And watches, as it moves, the orb of day.

QUEEN of the marſh, imperial DROSERA treads
Ruſh-fringed banks, and moſs-embroider'd beds;

A plumed Lady leads. l. 224. The ſeeds of many plants of this claſs are furniſhed with a plume, by which admirable mechaniſm they are diſſeminated by the winds far from their parent ſtem, and look like a ſhuttlecock, as they fly. Other ſeeds are diſſeminated by animals; of theſe ſome attach themſelves to their hair or feathers by a gluten, as miſletoe; others by hooks, as cleavers, burdock, hounds-tongue; and others are ſwallowed whole for the ſake of the fruit, and voided uninjured, as the hawthorn, juniper, and ſome graſſes. Other ſeeds again diſperſe themſelves by means of an elaſtic ſeed-veſſel, as Oats, Geranium, and Impatiens; and the ſeeds of aquatic plants, and of thoſe which grow on the banks of rivers, are carried many miles by the currents, into which they fall. See Impatiens. Zoſtera. Caſſia. Carlina.

Droſera. l. 229. Sun-dew. Five males, five females. The leaves of this marſh-plant are purple, and have a fringe very unlike other vegetable productions. And, which is curious, at the point of every thread of this erect fringe ſtands a pellucid drop of mucilage, reſembling a ducal coronet. This mucus is a ſecretion from certain glands, and like the viſcous material round the flower-ſtalks of Silene (catchfly) prevents ſmall inſects from infeſting the leaves. As the ear-wax in animals ſeems to be in part deſigned to prevent fleas and other inſects from getting into their ears. See Silene. Mr. Wheatly, an eminent ſurgeon in Cateaton-ſtreet, London, obſerved theſe leaves to bend upwards when an inſect ſettled on them, like the leaves of the Muſcipula Veneris, and pointing

Redundant folds of gloſſy ſilk ſurround
Her ſlender waiſt, and trail upon the ground;
Five ſiſter-nymphs collect with graceful eaſe,
Or ſpread the floating purple to the breeze;
And *five* fair youths with duteous love comply
With each ſoft mandate of her moving eye.
As with ſweet grace her ſnowy neck ſhe bows,
A zone of diamonds trembles round her brows;
Bright ſhines the ſilver halo, as ſhe turns;
And, as ſhe ſteps, the living luſtre burns.

Fair LONICERA prints the dewy lawn,
And decks with brighter bluſh the vermil dawn;

all their globules of mucus to the centre, that they completely intangled and deſtroyed it. M. Brouſſonet, in the Mem. de l'Acad. des Sciences for the year 1784, p. 615, after having deſcribed the motiön of the Dionæa, adds, that a ſimilar appearance has been obſerved in the leaves of two ſpecies of Droſera.

Lonicera. l. 241. Caprifolium, Honeyſuckle. Five males, one female. Nature has in many flowers uſed a wonderful apparatus to guard the nectary or honey gland from inſects In the honeyſuckle the petal terminates in a long tube like a cornucopiæ, or horn of plenty; and the honey is produced at the bottom of it. In Aconitum, monkshood, the nectaries ſtand upright like two horns covered with a hood, which abounds

Winds round the ſhadowy rocks, and pancied vales,
And ſcents with ſweeter breath the ſummer-gales.
With artleſs grace and native eaſe ſhe charms,
And bears the horn of plenty in her arms.
Five rival Swains their tender cares unfold,
And watch with eye aſkance the treaſured gold.

with ſuch acrid matter that no inſects penetrate it. In Helleborus, hellebore, the many nectaries are placed in a circle like little pitchers, and add much to the beauty of the flower. In the columbine, Aquilegia, the nectary is imagined to be like the neck and body of a bird, and the two petals ſtanding upon each ſide to repreſent wings; whence its name of columbine, as if reſembling a neſt of young pigeons fluttering whilſt their parent feeds them. The importance of the nectary in the economy of vegetation is explained at large in the notes on part the firſt.

Many inſects are provided with a long and pliant proboſcis for the purpoſe of acquiring this grateful food, as a variety of bees, moths, and butterflies: but the Sphinx Convolvuli, or unicorn moth, is furniſhed with the moſt remarkable proboſcis in this climate. It carries it rolled up in concentric circles under its chin, and occaſionally extends it to above three inches in length. This trunk conſiſts of joints and muſcles, and ſeems to have more verſatile movements than the trunk of the elephant; and near its termination is ſplit into two capillary tubes. The excellence of this contrivance for robbing the flowers of their honey, keeps this beautiful inſect fat and bulky; though it flies only in the evening, when the flowers have cloſed their petals, and are thence more difficult of acceſs; and at the ſame time the brilliant colours of the moth contribute to its ſafety, by making it miſtaken by the late ſleeping birds for the flower it reſts on.

Beſides theſe there is a curious contrivance attending the Ophrys, commonly called the Bee-orchis, and the Fly-orchis, with ſome kinds of the Delphinium, called Bee-larkſpurs, to preſerve their honey; in theſe the nectary and petals reſemble in form and colour the inſects which plunder them; and thus it may be ſuppoſed, they often eſcape theſe hourly robbers, by having the appearance of being pre-occupied. See note on Rubia, and Conſerva Polymorpha.

Where rears huge Tenerif his azure creſt,
Aſpiring DRABA builds her eagle neſt;
Her pendant eyry icy caves ſurround,
Where erſt Volcanos mined the rocky ground.
Pleaſed round the Fair *four* rival Lords aſcend
The ſhaggy ſteeps, *two* menial youths attend.
High in the ſetting ray the beauty ſtands,
And her tall ſhadow waves on diſtant lands.

Oh, ſtay, bright habitant of air, alight,
Ambitious VISCA, from thy angel-flight!—

Draba. l. 250. Alpina. Alpine Whitlow-graſs. One female and ſix males. Four of theſe males ſtand above the other two; whence the name of the claſs "four powers." I have obſerved in ſeveral plants of this claſs, that the two lower males ariſe, in a few days after the opening of the flower, to the ſame height as the other four, not being mature as ſoon as the higher ones. See note on Glorioſa. All the plants of this claſs poſſeſs ſimilar virtues; they are termed acrid and antiſcorbutic in their raw ſtate, as muſtard, watercreſs; when cultivated and boiled, they become a mild wholeſome food, as cabbage, turnep.

There was formerly a Volcano on the Peake of Tenerif, which became extinct about the year 1684. Philoſ. Tranſ. In many excavations of the mountain, much below the ſummit, there is now found abundance of ice at all ſeaſons. Tench's Expedition to Botany Bay, p. 12. Are theſe congelations in conſequence of the daily ſolution of the hoar-froſt, which is produced on the ſummit during the night?

Viſcum. l. 258. Miſleto. Two houſes. This plant never grows upon the ground; the foliage is yellow, and the berries milk-white; the berries are ſo viſcous, as to ſerve

—— Scorning the ſordid ſoil, aloft ſhe ſprings,
Shakes her white plume, and claps her golden wings;
High o'er the fields of boundleſs ether roves,
And ſeeks amid the clouds her ſoaring loves!

Stretch'd on her moſſy couch, in trackleſs deeps,
Queen of the coral groves, ZOSTERA ſleeps;
The ſilvery ſea-weed matted round her bed,
And diſtant ſurges murmuring o'er her head.—

for bird-lime; and when they fall, adhere to the branches of the tree, on which the plant grows, and ſtrike root into its bark, or are carried to diſtant trees by birds. The Tillandſia, or wild pine, grows on other trees, like the Miſletoe, but takes little or no nouriſhment from them, having large buckets in its leaves to collect and retain the rain water. See note on Dypſacus. The moſſes, which grow on the bark of trees, take much nouriſhment from them; hence it is obſerved that trees, which are annually cleared from moſs by a bruſh, grow nearly twice as faſt. (Phil. Tranſact.) In the cyder countries the peaſants bruſh their apple-trees annually.

Zoſtera. l. 264. Graſs-wrack. Claſs, Feminine Males. Order, many Males. It grows at the bottom of the ſea, and riſing to the ſurface when in flower, covers many leagues; and is driven at length to the ſhore. During its time of floating on the ſea, numberleſs animals live on the under ſurface of it; and being ſpecifically lighter than the ſea-water, or being repelled by it, have legs placed as it were on their backs for the purpoſe of walking under it. As the Scyllœa. See Barbut's Genera Vermium. It ſeems neceſſary that the marriages of plants ſhould be celebrated in the open air, either becauſe the powder of the anther, or the mucilage on the ſtigma, or the reſervoir of honey might receive injury from the water. Mr. Needham obſerved, that in the ripe duſt of every flower, examined by the microſcope, ſome veſicles are perceived, from which

High in the flood her azure dome aſcends,
The cryſtal arch on cryſtal columns bends;
Roof'd with tranſlucent ſhell the turrets blaze,
And far in ocean dart their colour'd rays;
O'er the white floor ſucceſſive ſhadows move,
As riſe and break the ruffled waves above.—
Around the nymph her mermaid-trains repair,
And weave with orient pearl her radiant hair;
With rapid fins ſhe cleaves the watery way,
Shoots like a ſilver meteor up to day;
Sounds a loud conch, convokes a ſcaly band,
Her ſea-born lovers, and aſcends the ſtrand.

E'en round the pole the flames of Love aſpire,
And icy boſoms feel the *ſecret* fire!—

a fluid had eſcaped; and that thoſe, which ſtill retain it, explode if they be wetted, like an eolopile ſuddenly expoſed to a ſtrong heat. Theſe obſervations have been verified by Spallanzani and others. Hence rainy ſeaſons make a ſcarcity of grain, or hinder its fecundity, by burſting the pollen before it arrives at the moiſt ſtigma of the flower. Spallanzani's Diſſertations, v. II. p. 321. Thus the flowers of the male Valliſneria are produced under water, and when ripe detach themſelves from the plant, and riſing to the ſurface are wafted by the air to the female flowers. See Valliſneria.

Cradled in ſnow and fann'd by arctic air
Shines, gentle BAROMETZ! thy golden hair;
Rooted in earth each cloven hoof deſcends,
And round and round her flexile neck ſhe bends;
Crops the gray coral moſs, and hoary thyme,
Or laps with roſy tongue the melting rime.

Barometz. l. 282. Polypodium Barometz. Tartarian Lamb. Clandeſtine Marriage. This ſpecies of Fern is a native of China, with a decumbent root, thick, and every where covered with the moſt ſoft and denſe wool, intenſely yellow. Lin. Spec. Plant.

This curious ſtem is ſometimes puſhed out of the ground in its horizontal ſituation by ſome of the inferior branches of the root, ſo as to give it ſome reſemblance to a Lamb ſtanding on four legs; and has been ſaid to deſtroy all other plants in its vicinity. Sir Hans Sloane deſcribes it under the name of Tartarian Lamb, and has given a print of it. Philoſ. Tranſ. abridged, v. II, p. 646. but thinks ſome art had been uſed to give it an animal appearance. Dr. Hunter, in his edition of the Terra of Evelyn, has given a more curious print of it, much reſembling a ſheep. The down is uſed in India externally for ſtopping hemorrhages, and is called golden moſs.

The thick downy clothing of ſome vegetables ſeems deſigned to protect them from the injuries of cold, like the wool of animals. Thoſe bodies, which are bad conductors of electricity, are alſo bad conductors of heat, as glaſs, wax, air. Hence either of the two former of theſe may be melted by the flame of a blow-pipe very near the fingers which hold it without burning them; and the laſt, by being confined on the ſurface of animal bodies, in the interſtices of their fur or wool, prevents the eſcape of their natural warmth; to which ſhould be added, that the hairs themſelves are imperfect conductors. The fat or oil of whales, and other northern animals, ſeems deſigned for the ſame purpoſe of preventing the too ſudden eſcape of the heat of the body in cold climates. Snow protects vegetables which are covered by it from cold, both becauſe it is a bad conductor of heat itſelf, and contains much air in its pores. If a piece of camphor be immerſed in a ſnow-ball, except one extremity of it, on ſetting fire to this, as the ſnow melts, the water becomes abſorbed into the ſurrounding ſnow by capillary attraction; on this account, when living animals are buried in ſnow, they are not moiſtened by it; but the cavity enlarges as the ſnow diſſolves, affording them both a dry and warm habitation.

Eyes with mute tenderneſs her diſtant dam,
Or ſeems to bleat, a *Vegetable Lamb.*
—So, warm and buoyant in his oily mail,
Gambols on ſeas of ice the unwieldy Whale;
Wide-waving fins round floating iſlands urge
His bulk gigantic through the troubled ſurge;
With hideous yawn the flying ſhoals he ſeeks,
Or claſps with fringe of horn his maſſy cheeks;
Lifts o'er the toſſing wave his noſtrils bare,
And ſpouts pellucid columns into air;
The ſilvery arches catch the ſetting beams,
And tranſient rainbows tremble o'er the ſtreams.

Weak with nice ſenſe the chaſte MIMOSA ſtands,
From each rude touch withdraws her timid hands;

Mimoſa. l. 299. The ſenſitive plant. Of the claſs Polygamy, one houſe. Naturaliſts have not explained the immediate cauſe of the collapſing of the ſenſitive plant; the leaves meet and cloſe in the night during the ſleep of the plant, or when expoſed to much cold in the day-time, in the ſame manner as when they are affected by external violence, folding their upper ſurfaces together, and in part over each other like ſcales or tiles, ſo as to expoſe as little of the upper ſurface as may be to the air; but do not indeed collapſe quite

Oft as light clouds o'er-paſs the Summer-glade,
Alarm'd ſhe trembles at the moving ſhade;
And feels, alive through all her tender form,
The whiſper'd murmurs of the gathering ſtorm;
Shuts her ſweet eye-lids to approaching night,
And hails with freſhen'd charms the riſing light.
Veil'd, with gay decency and modeſt pride,
Slow to the moſque ſhe moves, an eaſtern bride;
There her ſoft vows unceaſing love record,
Queen of the bright ſeraglio of her lord.—
So ſinks or riſes with the changeful hour
The liquid ſilver in its glaſſy tower.

ſo far, ſince I have found, when touched in the night during their ſleep, they fall ſtill farther; eſpecially when touched on the foot-ſtalks between the ſtems and the leaflets, which ſeems to be their moſt ſenſitive or irritable part. Now, as their ſituation after being expoſed to external violence reſembles their ſleep, but with a greater degree of collapſe, may it not be owing to a numbneſs or paralyſis conſequent to too violent irritation, like the faintings of animals from pain or fatigue? I kept a ſenſitive plant in a dark room till ſome hours after day-break; its leaves and leaf-ſtalks were collapſed as in its moſt profound ſleep, and on expoſing it to the light, above twenty minutes paſſed before the plant was thoroughly awake and had quite expanded itſelf. During the night the upper or ſmoother ſurfaces of the leaves are appreſſed together; this would ſeem to ſhew that the office of this ſurface of the leaf was to expoſe the fluids of the plant to the light as well as to the air. See note on Helianthus. Many flowers cloſe up their petals during the night. See note on vegetable reſpiration in Part I.

So turns the needle to the pole it loves,
With fine librations quivering, as it moves.

All wan and ſhivering in the leafleſs glade
The ſad ANEMONE reclin'd her head;
Grief on her cheeks had paled the roſeate hue,
And her ſweet eye-lids dropp'd with pearly dew.
—"See, from bright regions, borne on odorous gales
"The Swallow, herald of the ſummer, ſails;

Anemone. l. 318. Many males, many females. Pliny ſays this flower never opens its petals but when the wind blows; whence its name: it has properly no calyx, but two or three ſets of petals, three in each ſet, which are folded over the ſtamens and piſtil in a ſingular and beautiful manner, and differs alſo from ranunculus in not having a melliferous pore on the claw of each petal.

The Swallow. l. 322. There is a wonderful conformity between the vegetation of ſome plants, and the arrival of certain birds of paſſage. Linneus obſerves that the wood anemone blows in Sweden on the arrival of the ſwallow; and the marſh mary-gold, Caltha, when the cuckoo ſings. Near the ſame coincidence was obſerved in England by Stillingfleet. The word Coccux in Greek ſignifies both a young fig and a cuckoo, which is ſuppoſed to have ariſen from the coincidence of their appearance in Greece. Perhaps a ſimilar coincidence of appearance in ſome part of Aſia gave occaſion to the ſtory of the love of the roſe and nightingale, ſo much celebrated by the eaſtern poets. See Dianthus. The times however of the appearance of vegetables in the ſpring ſeem occaſionally to be influenced by their acquired habits, as well as by their ſenſibility to heat: for the roots of potatoes, onions, &c. will germinate with much leſs heat in the ſpring than in the autumn; as is eaſily obſervable where theſe roots are ſtored for uſe;

"Breathe, gentle Air! from cherub-lips impart
"Thy balmy influence to my anguiſh'd heart;
"Thou, whoſe ſoft voice calls forth the tender blooms,
"Whoſe pencil paints them, and whoſe breath perfumes;
"Oh chaſe the Fiend of Froſt, with leaden mace
"Who ſeals in death-like ſleep my hapleſs race;
"Melt his hard heart, releaſe his iron hand,
"And give my ivory petals to expand.

and hence malt is beſt made in the ſpring. 2d. The grains and roots brought from more ſouthern latitudes germinate here ſooner than thoſe which are brought from more northern ones, owing to their acquired habits. Fordyce on Agriculture. 3d. It was obſerved by one of the ſcholars of Linneus, that the apple trees ſent from hence to New England bloſſomed for a few years too early for that climate, and bore no fruit; but afterwards learnt to accommodate themſelves to their new ſituation. (Kalm's Travels) 4th. The parts of animals become more ſenſible to heat after having been previouſly expoſed to cold, as our hands glow on coming into the houſe after having held ſnow in them; this ſeems to happen to vegetables; for vines in grape-houſes, which have been expoſed to the winter's cold, will become forwarder and more vigorous than thoſe which have been kept during the winter in the houſe. (Kennedy on Gardening.) This accounts for the very rapid vegetation in the northern latitudes after the ſolution of the ſnows.

The increaſe of the irritability of plants in reſpect to heat, after having been previouſly expoſed to cold, is farther illuſtrated by an experiment of Dr. Walker's. He cut apertures into a birch-tree at different hights; and on the 26th of March ſome of theſe apertures bled, or oozed with the ſap-juice, when the thermometer was at 39; which ſame apertures did not bleed on the 13th of March, when the thermometer was at 44. The reaſon of this I apprehend was, becauſe on the night of the 25th the thermometer was as low as 34; whereas on the night of the 12th it was at 41; though the ingenious author aſcribes it to another cauſe. Tranſ. of the Royal Soc. of Edinburgh, v. 1, p. 19.

" So may each bud, that decks the brow of ſpring,
" Shed all its incenſe on thy wafting wing!"—
To her fond prayer propitious Zephyr yields,
Sweeps on his ſliding ſhell through azure fields,
O'er her fair manſion waves his whiſpering wand,
And gives her ivory petals to expand!
Gives with new life her filial train to riſe,
And hail with kindling ſmiles the genial ſkies.
So ſhines the Nymph in beauty's bluſhing pride,
When Zephyr wafts her deep calaſh aſide,
Tears with rude kiſs her boſom's gauzy veil,
And flings the fluttering kerchief to the gale.
So bright, the folding canopy undrawn,
Glides the gilt Landau o'er the velvet lawn,
Of beaux and belles diſplays the glittering throng,
And ſoft airs fan them, as they roll along.

Where frowning Snowden bends his dizzy brow
O'er Conway, liſtening to the ſurge below;

Retiring Lichen climbs the topmoſt ſtone,
And drinks the aerial ſolitude alone.—
Bright ſhine the ſtars unnumber'd *o'er her head*,
And the cold moon-beam gilds her flinty bed;
While round the rifted rocks hoarſe whirlwinds breathe,
And dark with thunder ſail the clouds *beneath*.—
The ſteepy path her plighted ſwain purſues,
And tracks her light ſteps o'er the imprinted dews;
Delighted Hymen gives his torch to blaze,
Winds round the craggs, and lights the mazy ways;
Sheds o'er their ſecret vows his influence chaſte,
And decks with roſes the admiring waſte.

High in the front of heaven when Sirius glares,
And o'er Britannia ſhakes his fiery hairs:

Lichen. l. 349. Calcareum. Liver-wort. Clandeſtine Marriage. This plant is the firſt that vegetates on naked rocks, covering them with a kind of tapeſtry, and draws its nouriſhment perhaps chiefly from the air; after it periſhes, earth enough is left for other moſſes to root themſelves; and after ſome ages a ſoil is produced ſufficient for the growth of more ſucculent and large vegetables. In this manner perhaps the whole earth has been gradually covered with vegetation, after it was raiſed out of the primeval ocean by ſubterraneous fires.

When no ſoft ſhower deſcends, no dew diſtills,
Her wave-worn channels dry, and mute her rills;
When droops the ſickening herb, the bloſſom fades,
And parch'd earth gapes beneath the withering glades;
——With languid ſtep fair DYPSACA retreats,
" Fall, gentle dews!" the fainting nymph repeats,
Seeks the low dell, and in the ſultry ſhade
Invokes in vain the Naiads to her aid.—
Four ſylvan youths in cryſtal goblets bear
The untaſted treaſure to the grateful fair;
Pleaſed from their hands with modeſt grace ſhe ſips,
And the cool wave reflects her coral lips.

Dypſacus. l. 367. Teaſel. One female, and four males. There is a cup around every joint of the ſtem of this plant, which contains from a ſpoonful to half a pint of water; and ſerves both for the nutriment of the plant in dry ſeaſons, and to prevent inſects from creeping up to devour its ſeed. See Silene. The Tillandſia, or wild pine, of the Weſt Indies has every leaf terminated near the ſtalk with a hollow bucket, which contains from half a pint to a quart of water. Dampier's Voyage to Campeachy. Dr. Sloane mentions one kind of aloe furniſhed with leaves, which, like the wild pine and Banana, hold water; and thence afford neceſſary refreſhment to travellers in hot countries. Nepenthes has a bucket for the ſame purpoſe at the end of every leaf. Burm. Zeyl. 42. 17.

With nice ſelection modeſt RUBIA blends
Her vermil dyes, and o'er the cauldron bends;
Warm mid the riſing ſteam the Beauty glows,
As bluſhes in a miſt the dewy roſe.
With chemic art *four* favour'd youths aloof
Stain the white fleece, or ſtretch the tinted woof;

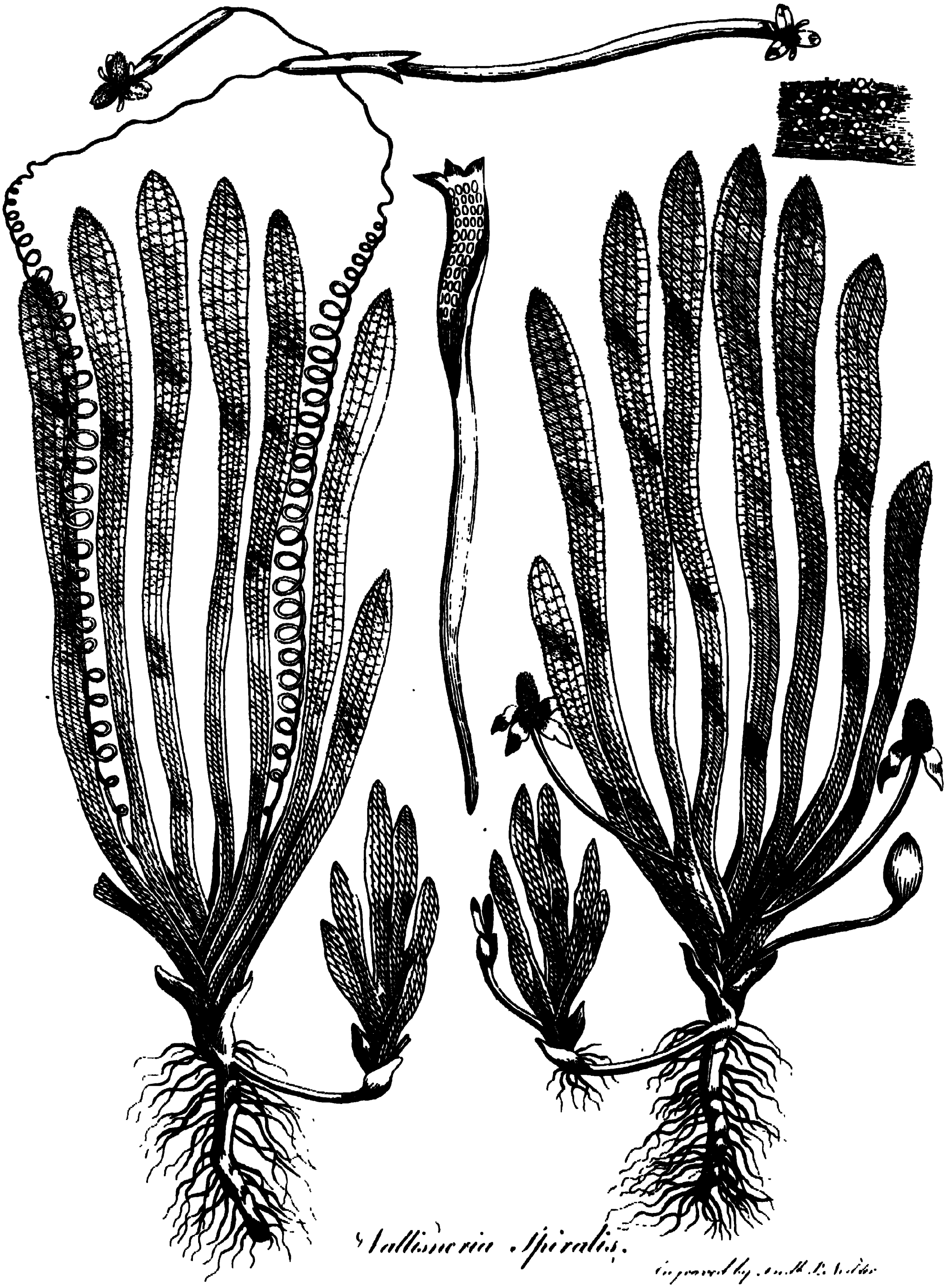
Rubia. l. 375. Madder. Four males and one female. This plant is cultivated in very large quantities for dying red. If mixed with the food of young pigs or chickens, it colours their bones red. If they are fed alternate fortnights, with a mixture of madder, and with their uſual food alone, their bones will conſiſt of concentric circles of white and red. Belchier. Phil. Tranſ. 1736. Animals fed with madder for the purpoſe of theſe experiments were found upon diſſection to have thinner gall. Comment. de rebus. Lipſiæ. This circumſtance is worth farther attention. The colouring materials of vegetables, like thoſe which ſerve the purpoſe of tanning, varniſhing, and the various medical purpoſes, do not ſeem eſſential to the life of the plant; but ſeem given it as a defence againſt the depredations of inſects or other animals, to whom theſe materials are nauſeous or deleterious. The colours of inſects and many ſmaller animals contribute to conceal them from the larger ones which prey upon them. Caterpillars which feed on leaves are generally green; and earth-worms the colour of the earth which they inhabit; butterflies which frequent flowers are coloured like them; ſmall birds which frequent hedges have greeniſh backs like the leaves, and light coloured bellies like the ſky, and are hence leſs viſible to the hawk, who paſſes under them or over them. Thoſe birds which are much amongſt flowers, as the goldfinch, (Fringilla Carduelis) are furniſhed with vivid colours. The lark, partridge, hare, are the colour of dry vegetables, or earth on which they reſt. And frogs vary their colour with the mud of the ſtreams which they frequent; and thoſe which live on trees are green. Fiſh, which are generally ſuſpended in water, and ſwallows, which are generally ſuſpended in air, have their backs the colour of the diſtant ground, and their bellies of the ſky. In the colder climates many of theſe become white during the exiſtence of the ſnows. Hence there is apparent deſign in the colours of animals, whilſt thoſe of vegetables ſeem conſequent to the other properties of the materials which poſſeſs them.

O'er Age's cheek the warmth of youth diffuſe,
Or deck the pale-eyed nymph in roſeate hues.
So when MEDEA to exulting Greece
From plunder'd COLCHIS bore the golden fleece;
On the loud ſhore a magic pile ſhe rais'd,
The cauldron bubbled, and the faggots blaz'd;
Pleaſed on the boiling wave old ÆSON ſwims,
And feels new vigour ſtretch his ſwelling limbs;
Through his thrill'd nerves forgotten ardors dart,
And warmer eddies circle round his heart;
With ſofter fires his kindling eye-balls glow,
And darker treſſes wanton round his brow.

Pleaſed on the boiling wave. l. 387. The ſtory of Æſon becoming young, from the medicated bath of Medea, ſeems to have been intended to teach the efficacy of warm bathing in retarding the progreſs of old age. The words *relaxation and bracing*, which are generally thought expreſſive of the effects of warm and cold bathing, are mechanical terms, properly applied to drums or ſtrings; but are only metaphors when applied to the effects of cold or warm bathing on animal bodies. The immediate cauſe of old age ſeems to reſide in the inirritability of the finer veſſels or parts of our ſyſtem; hence theſe ceaſe to act, and collapſe, or become horny or bony. The warm bath is peculiarly adapted to prevent theſe circumſtances by its increaſing our irritability, and by moiſtening and ſoftening the ſkin, and the extremities of the finer veſſels, which terminate in it. To thoſe who are paſt the meridian of life, and have dry ſkins, and begin to be emaciated, the warm bath, for half an hour twice a week, I believe to be eminently ſerviceable in retarding the advances of age.

As daſh the waves on India's breezy ſtrand,
Her fluſh'd cheek preſs'd upon her lily hand,
VALLISNER ſits, up-turns her tearful eyes,
Calls her loſt lover, and upbraids the ſkies;
For him ſhe breathes the ſilent ſigh, forlorn,
Each ſetting day; for him each riſing morn.—
" Bright orbs, that light yon high etherial plain,
" Or bathe your radiant treſſes in the main;
" Pale moon, that ſilver'ſt o'er night's ſable brow;—
" For ye were witneſs to his parting vow!
" Ye ſhelving rocks, dark waves, and ſounding ſhore,—
" Ye echoed ſweet the tender words he ſwore!—

Valliſneria. l. 395. This extraordinary plant is of the claſs Two Houſes. It is found in the Eaſt Indies, in Norway, and various parts of Italy. Lin. Spec. Plant. They have their roots at the bottom of the Rhone; the flowers of the female plant float on the ſurface of the water, and are furniſhed with an elaſtic ſpiral ſtalk, which extends or contracts as the water riſes and falls; this riſe or fall, from the rapid deſcent of the river, and the mountain torrents which flow into it, often amounts to many feet in a few hours. The flowers of the male plant are produced under water, and as ſoon as their farina, or duſt, is mature, they detach themſelves from the plant, and riſe to the ſurface, continue to flouriſh, and are wafted by the air, or borne by the currents to the female flowers. In this reſembling thoſe tribes of inſects, where the males at certain ſeaſons acquire wings, but not the females, as ants, Coccus, Lampyris, Phalæna, Brumata, Lichanella. Theſe male flowers are in ſuch numbers, though very minute, as frequently to cover the ſurface of the river to conſiderable extent. See Families of Plants, tranſlated from Linneus, p. 677.



Vallisneria Spiralis.

Engraved by Anth. P. Wilder

"Can ſtars or ſeas the ſails of love retain?
"O guide my wanderer to my arms again!"

Her buoyant ſkiff intrepid ULVA guides,
And ſeeks her Lord amid the trackleſs tides;

Ulva. l. 407. Clandeſtine marriage. This kind of ſea-weed is buoyed up by bladders of air, which are formed in the duplicatures of its leaves, and forms immenſe floating fields of vegetation; the young ones, branching out from the larger ones, and borne on ſimilar little air-veſſels. It is alſo found in the warm baths of Patavia, where the leaves are formed into curious cells or labyrinths for the purpoſe of floating on the water. See ulva labyrinthi-formis Lin. Spec. Plant. The air contained in theſe cells was found by Dr. Prieſtley to be ſometimes purer than common air, and ſometimes leſs pure; the air-bladders of fiſh ſeem to be ſimilar organs, and ſerve to render them buoyant in the water. In ſome of theſe, as in the Cod and Haddock, a red membrane, conſiſting of a great number of leaves or duplicatures, is found within the air-bag, which probably ſecretes this air from the blood of the animal. (Monro. Phyſiol. of Fiſh, p. 28.) To determine whether this air, when firſt ſeparated from the blood of the animal or plant, be dephlogiſticated air, is worthy inquiry. The bladder-ſena (Colutea) and bladder-nut (Staphylæa) have their ſeed-veſſels diſtended with air; the Ketmia has the upper joint of the ſtem immediately under the receptacle of the flower much diſtended with air; theſe ſeem to be analogous to the air-veſſel at the broad end of the egg, and may probably become leſs pure as the ſeed ripens; ſome, which I tried, had the purity of the ſurrounding atmoſphere. The air at the broad end of the egg is probably an organ ſerving the purpoſe of reſpiration to the young chick, ſome of whoſe veſſels are ſpread upon it like a placenta, or permeate it. Many are of opinion that even the placenta of the human fetus, and cotyledons of quadrupeds, are reſpiratory organs rather than nutritious ones.

The air in the hollow ſtems of graſſes, and of ſome unbelliferous plants, bears analogy to the air in the quills, and in ſome of the bones of birds; ſupplying the place of the pith, which ſhrivels up after it has performed its office of protruding the young ſtem or feather. Some of theſe cavities of the bones are ſaid to communicate with the lungs in birds. Phil. Tranſ.

The air-bladders of fiſh are nicely adapted to their intended purpoſe; for though they render them buoyant near the ſurface without the labour of uſing their fins, yet, when they reſt at greater depths, they are no inconvenience, as the increaſed preſſure of the water condenſes the air which they contain into leſs ſpace. Thus, if a cork or bladder

Her *ſecret* vows the Cyprian Queen approves,
And hovering Halcyons guard her infant-loves;
Each in his floating cradle round they throng,
And dimpling Ocean bears the fleet along.—
Thus o'er the waves, which gently bend and ſwell,
Fair GALATEA ſteers her ſilver ſhell;
Her playful Dolphins ſtretch the ſilken rein,
Hear her ſweet voice, and glide along the main.
As round the wild meandring coaſt ſhe moves
By guſhing rills, rude cliffs, and nodding groves;
Each by her pine the Wood-nymphs wave their locks,
And wondering Naiads peep amid the rocks!
Pleaſed trains of Mermaids riſe from coral cells;
Admiring Tritons ſound their twiſted ſhells;
Charm'd o'er the car purſuing Cupids ſweep,
Their ſnow-white pinions twinkling in the deep;

of air was immerſed a very great depth in the ocean, it would be ſo much compreſſed, as to become ſpecifically as heavy as the water, and would remain there. It is probable the unfortunate Mr. Day, who was drowned in a diving-ſhip of his own conſtruction, miſcarried from not attending to this circumſtance: it is probable the quantity of air he took down with him, if he deſcended much lower than he expected, was condenſed into ſo ſmall a ſpace as not to render the ſhip buoyant when he endeavoured to aſcend.

And, as the luſtre of her eye ſhe turns,
Soft ſighs the Gale, and amorous Ocean burns.

On Dove's green brink the fair Tremella ſtood,
And view'd her playful image in the flood;
To each rude rock, lone dell, and echoing grove
Sung the ſweet ſorrows of her *ſecret* love.

Tremella. l. 427. Clandeſtine marriage. I have frequently obſerved funguſſes of this Genus on old rails and on the ground to become a tranſparent jelly, after they had been frozen in autumnal mornings; which is a curious property, and diſtinguiſhes them from ſome other vegetable mucilage; for I have obſerved that the paſte, made by boiling wheat-flour in water, ceaſes to be adheſive after having been frozen. I ſuſpected that the Tremella Noſtoc, or ſtar-gelly, alſo had been thus produced; but have ſince been well informed, that the Tremella Noſtoc is a mucilage voided by Herons after they have eaten frogs; hence it has the appearance of having been preſſed through a hole; and limbs of frogs are ſaid ſometimes to be found amongſt it; it is always ſeen upon plains, or by the ſides of water, places which Herons generally frequent.

Some of the funguſſes are ſo acrid, that a drop of their juice bliſters the tongue; others intoxicate thoſe who eat them. The Oſtiacks in Siberia uſe them for the latter purpoſe; one fungus of the ſpecies Agaricus Muſcarum, eaten raw, or the decoction of three of them, produces intoxication for 12 or 16 hours. Hiſtory of Ruſſia, v. I. Nichols. 1780. As all acrid plants become leſs ſo, if expoſed to a boiling heat, it is probable the common muſhroom may ſometimes diſagree from being not ſufficiently ſtewed. The Oſtiacks bliſter their ſkin by a fungus found on Birch-trees; and uſe the Agaricus officin. for Soap. Ib.

There was a diſpute whether the funguſſes ſhould be claſſed in the animal or vegetable department. Their animal taſte in cookery, and their animal ſmell when burnt, together with their tendency to putrefaction, inſomuch that the Phallus impudicus has gained the name of ſtink-horn; and laſtly, their growing and continuing healthy without light, as the Licoperdon tuber or truffle, and the fungus vinoſus or mucor in dark cellars, and the eſculent muſhrooms on beds covered thick with ſtraw, would ſeem to ſhew that they approach towards the animals, or make a kind of iſthmus connecting the two mighty kingdoms of animal and of vegetable nature.

" Oh, ſtay!—return!"—along the ſounding ſhore
Cry'd the ſad Naiads,—ſhe return'd no more!—
Now girt with clouds the ſullen Evening frown'd,
And withering Eurus ſwept along the ground;
The miſty moon withdrew her horned light,
And ſunk with Heſper in the ſkirt of night;
No dim electric ſtreams, (the northern dawn)
With meek effulgence quiver'd o'er the lawn;
No ſtar benignant ſhot one tranſient ray
To guide or light the wanderer on her way.
Round the dark craggs the murmuring whirlwinds blow,
Woods groan above, and waters roar below;
As o'er the ſteeps with pauſing foot ſhe moves,
The pitying Dryads ſhriek amid their groves.
She flies—ſhe ſtops—ſhe pants—ſhe looks behind,
And hears a demon howl in every wind.
—As the bleak blaſt unfurls her fluttering veſt,
Cold beats the ſnow upon her ſhuddering breaſt;
Through her numb'd limbs the chill ſenſations dart,
And the keen ice-bolt trembles at her heart.

"I ſink, I fall! oh, help me, help!" ſhe cries,
Her ſtiffening tongue the unfiniſhed ſound denies;
Tear after tear adown her cheek ſucceeds,
And pearls of ice beſtrew the glittering meads;
Congealing ſnows her lingering feet ſurround,
Arreſt her flight, and root her to the ground;
With ſuppliant arms ſhe pours the ſilent prayer;
Her ſuppliant arms hang cryſtal in the air;
Pellucid films her ſhivering neck o'erſpread,
Seal her mute lips, and ſilver o'er her head;
Veil her pale boſom, glaze her lifted hands,
And ſhrined in ice the beauteous ſtatue ſtands.
—Dove's azure nymphs on each revolving year
For fair Tremella ſhed the tender tear;
With ruſh-wove crowns in ſad proceſſion move,
And ſound the ſorrowing ſhell to hapleſs love."

Here pauſed the Muse,—acroſs the darken'd pole
Sail the dim clouds, the echoing thunders roll;

The trembling Wood-nymphs, as the tempeſt lowers,
Lead the gay goddeſs to their inmoſt bowers;
Hang the mute lyre the laurel ſhade beneath,
And round her temples bind the myrtle wreath.
—Now the light ſwallow with her airy brood
Skims the green meadow, and the dimpled flood;
Loud ſhrieks the lone thruſh from his leafleſs thorn,
Th' alarmed beetle ſounds his bugle horn;
Each pendant ſpider winds with fingers fine
His ravel'd clue, and climbs along the line;
Gay Gnomes in glittering circles ſtand aloof
Beneath a ſpreading muſhroom's fretted roof;
Swift bees returning ſeek their waxen cells,
And Sylphs cling quivering in the lily's bells.
Through the ſtill air deſcend the genial ſhowers,
And pearly rain-drops deck the laughing flowers.

INTERLUDE.

Bookseller. YOUR verses, Mr. Botanist, consist of *pure description*, I hope there is *sense* in the notes.

Poet. I am only a flower-painter, or occasionally attempt a landskip; and leave the human figure with the subjects of history to abler artists.

B. It is well to know what subjects are within the limits of your pencil; many have failed of success from the want of this self-knowledge. But pray tell me, what is the essential difference between Poetry and Prose? is it solely the melody or measure of the language

P. I think not solely; for some prose has its melody, and even measure. And good verses, well spoken in a language unknown to the hearer, are not easily to be distinguished from good prose.

B. Is it the sublimity, beauty, or novelty of the sentiments?

P. Not so; for sublime sentiments are often better expressed in prose. Thus when Warwick, in one of the plays of Shakespear, is left wounded on the field after the loss of the battle, and his friend says to him, " O, could you but fly!" what can be more sublime than his answer, " Why then, I would not fly." No measure of verse, I imagine, could add dignity to this sentiment.

And it would be eaſy to ſelect examples of the beautiful or new from proſe writers, which, I ſuppoſe, no meaſure of verſe could improve.

B. In what then conſiſts the eſſential difference between Poetry and Proſe?

P. Next to the meaſure of the language, the principal diſtinction appears to me to conſiſt in this: that Poetry admits of but few words expreſſive of very abſtracted ideas, whereas Proſe abounds with them. And as our ideas derived from viſible objects are more diſtinct than thoſe derived from the objects of our other ſenſes, the words expreſſive of theſe ideas belonging to viſion make up the principal part of poetic language. That is, the Poet writes principally to the eye, the Proſe-writer uſes more abſtracted terms. Mr. Pope has written a bad verſe in the Windſor Foreſt:

> "And Kennet ſwift for ſilver Eels *renown'd.*"

The word renown'd does not preſent the idea of a viſible object to the mind, and is thence proſaic. But change this line thus:

> "And Kennet ſwift, where ſilver Graylings *play.*"

and it becomes poetry, becauſe the ſcenery is then brought before the eye.

B. This may be done in proſe.

P. And when it is done in a ſingle word, it animates the proſe; ſo it is more agreeable to read in Mr. Gibbon's Hiſtory, "Germany

was at this time *over-ſhadowed* with extenſive foreſts; than Germany was at this time *full* of extenſive foreſts. But where this mode of expreſſion occurs too frequently, the proſe approaches to poetry: and in graver works, where we expect to be inſtructed rather than amuſed, it becomes tedious and impertinent. Some parts of Mr. Burke's eloquent orations become intricate and enervated by ſuperfluity of poetic ornament; which quantity of ornament would have been agreeable in a poem, where much ornament is expected.

B. Is then the office of Poetry only to amuſe?

P. The Muſes are young Ladies; we expect to ſee them dreſſed; though not like ſome modern beauties, with ſo much gauze and feather, that "the Lady herſelf is the leaſt part of her." There are however didactic pieces of poetry, which are much admired, as the Georgics of Virgil, Maſon's Engliſh Garden, Hayley's Epiſtles; nevertheleſs Science is beſt delivered in Proſe, as its mode of reaſoning is from ſtricter analogies than metaphors or ſimilies.

B. Do not Perſonifications and Allegories diſtinguiſh Poetry?

P. Theſe are other arts of bringing objects before the eye; or of expreſſing ſentiments in the language of viſion; and are indeed better ſuited to the pen than the pencil.

B. That is ſtrange, when you have juſt ſaid they are uſed to bring their objects before the eye.

P. In poetry the perſonification or allegoric figure is generally indiſtinct, and therefore does not ſtrike us ſo forcibly as to make us attend to its improbability; but in painting, the figures being all much more diſtinct, their improbability becomes apparent, and ſeizes our attention to it. Thus the perſon of Concealment is very

indiſtinct, and therefore does not compel us to attend to its improbability, in the following beautiful lines of Shakeſpear:

" —— She never told her love;
But let Concealment, like a worm i' th' bud,
Feed on her damaſk cheek."—

But in theſe lines below the perſon of Reaſon obtrudes itſelf into our company, and becomes diſagreeable by its diſtinctneſs, and conſequent improbability:

" To Reaſon I flew, and intreated her aid,
Who pauſed on my caſe, and each circumſtance weigh'd;
Then gravely reply'd in return to my prayer,
That Hebe was faireſt of all that were fair.
That's a truth, reply'd I, I've no need to be taught,
I came to you, Reaſon, to find out a fault.
If that's all, ſays Reaſon, return as you came,
To find fault with Hebe would forfeit my name."

Allegoric figures are on this account in general leſs manageable in painting and in ſtatuary than in poetry; and can ſeldom be introduced in the two former arts in company with natural figures, as is evident from the ridiculous effect of many of the paintings of Rubens in the Luxemburgh gallery; and for this reaſon, becauſe their improbability becomes more ſtriking, when there are the figures of real perſons by their ſide to compare them with.

Mrs. Angelica Kauffman, well appriſed of this circumſtance, has introduced no mortal figures amongſt her Cupids and her Graces. And the great Roubiliac, in his unrivalled monument of Time and Fame ſtruggling for the trophy of General Wade, has only hung up a medallion of the head of the hero of the piece. There are, however,

ſome allegoric figures, which we have ſo often heard deſcribed or ſeen delineated, that we almoſt forget that they do not exiſt in common life; and thence view them without aſtoniſhment; as the figures of the heathen mythology, of angels, devils, death, and time; and almoſt believe them to be realities, even when they are mixed with repreſentations of the natural forms of man. Whence I conclude, that a certain degree of probability is neceſſary to prevent us from revolting with diſtaſte from unnatural images; unleſs we are otherwiſe ſo much intereſted in the contemplation of them as not to perceive their improbability.

B. Is this reaſoning about degrees of probability juſt?—When Sir Joſhua Reynolds, who is unequalled both in the theory and practice of his art, and who is a great maſter of the pen as well as the pencil, has aſſerted in a diſcourſe delivered to the Royal Academy, December 11, 1786, that "the higher ſtyles of painting, like the "higher kinds of the Drama, do not aim at any thing like decep- "tion; or have any expectation that the ſpectators ſhould think the "events there repreſented are really paſſing before them." And he then accuſes Mr. Fielding of bad judgement, when he attempts to compliment Mr. Garrick in one of his novels, by introducing an ignorant man, miſtaking the repreſentation of a ſcene in Hamlet for a reality; and thinks, becauſe he was an ignorant man, he was leſs liable to make ſuch a miſtake.

P. It is a metaphyſical queſtion, and requires more attention than Sir Joſhua has beſtowed upon it.—You will allow that we are perfectly deceived in our dreams: and that even in our waking reveries, we are often ſo much abſorbed in the contemplation of what paſſes in our imaginations, that for a while we do not attend to the lapſe of time or to our own locality; and thus ſuffer a ſimilar kind of deception, as in our dreams. That is, we believe things preſent before our eyes, which are not ſo.

There are two circumſtances which contribute to this complete deception in our dreams. Firſt, becauſe in ſleep the organs of ſenſe are cloſed or inert, and hence the trains of ideas aſſociated in our imaginations are never interrupted or diſſevered by the irritations of external objects, and cannot therefore be contraſted with our ſenſations. On this account, though we are affected with a variety of paſſions in our dreams, as anger, love, joy, yet we never experience ſurprize.—For ſurprize is only produced when any external irritations ſuddenly obtrude themſelves, and diſſever our paſſing trains of ideas.

Secondly, becauſe in ſleep there is a total ſuſpenſion of our voluntary power, both over the muſcles of our bodies, and the ideas of our minds; for we neither walk about, nor reaſon in complete ſleep. Hence, as the trains of our ideas are paſſing in our imaginations in dreams, we cannot compare them with our previous knowledge of things, as we do in our waking hours; for this is a voluntary exertion, and thus we cannot perceive their incongruity.

Thus we are deprived in ſleep of the only two means by which we can diſtinguiſh the trains of ideas paſſing in our imaginations, from thoſe excited by our ſenſations; and are led by their vivacity to believe them to belong to the latter. For the vivacity of theſe trains of ideas, paſſing in the imagination, is greatly increaſed by the cauſes above mentioned; that is, by their not being diſturbed or diſſevered either by the appulſes of external bodies, as in ſurprize; or by our voluntary exertions in comparing them with our previous knowledge of things, as in reaſoning upon them.

B. Now to apply.

P. When by the art of the Painter or Poet a train of ideas is ſuggeſted to our imaginations, which intereſts us ſo much by the pain

or pleafure it affords, that we ceafe to attend to the irritations of common external objects, and ceafe alfo to ufe any voluntary efforts to compare thefe interefting trains of ideas with our previous knowledge of things, a complete reverie is produced: during which time, however fhort, if it be but for a moment, the objects themfelves appear to exift before us. This, I think, has been called by an ingenious critic, " the ideal prefence" of fuch objects. (Elements of Criticifm by Lord Kaimes). And in refpect to the compliment intended by Mr. Fielding to Mr. Garrick, it would feem that an ignorant Ruftic at the play of Hamlet, who has fome previous belief in the appearance of Ghofts, would fooner be liable to fall into a reverie, and continue in it longer, than one who poffeffed more knowledge of the real nature of things, and had a greater facility of exercifing his reafon.

B. It muft require great art in the Painter or Poet to produce this kind of deception?

P. The matter muft be interefting from its fublimity, beauty, or novelty; this is the fcientific part; and the art confifts in bringing thefe diftinctly before the eye, fo as to produce (as above mentioned) the ideal prefence of the object, in which the great Shakefpear particularly excells.

B. Then it is not of any confequence whether the reprefentations correfpond with nature?

P. Not if they fo much intereft the reader or fpectator as to induce the reverie above defcribed. Nature may be feen in the market-place, or at the card-table; but we expect fomething more than this in the play-houfe or picture-room.' The farther the artifts recedes from nature, the greater novelty he is likely to produce; if he rifes above nature, he produces the fublime; and beauty is probably a

ſelection and new combination of her moſt agreeable parts. Yourſelf will be ſenſible of the truth of this doctrine, by recollecting over in your mind the works of three of our celebrated artiſts. Sir Joſhua Reynolds has introduced ſublimity even into its portraits; we admire the repreſentation of perſons, whoſe reality we ſhould have paſſed by unnoticed. Mrs. Angelica Kauffman attracts our eyes with beauty, which I ſuppoſe no where exiſts; certainly few Grecian faces are ſeen in this country. And the daring pencil of Fuſeli tranſports us beyond the boundaries of nature, and raviſhes us with the charm of the moſt intereſting novelty. And Shakeſpear, who excells in all theſe together, ſo far captivates the ſpectator, as to make him unmindful of every kind of violation of Time, Place, or Exiſtence. As at the firſt appearance of the Ghoſt of Hamlet, "his "ear muſt be dull as the fat weed which roots itſelf on Lethe's "brink," who can attend to the improbability of the exhibition. So in many ſcenes of the Tempeſt we perpetually believe the action paſſing before our eyes, and relapſe with ſomewhat of diſtaſte into common life at the intervals of the repreſentation.

B. I ſuppoſe a poet of leſs ability would find ſuch great machinery difficult and cumberſome to manage?

P. Juſt ſo, we ſhould be ſhocked at the apparent improbabilities. As in the gardens of a Sicilian nobleman, deſcribed in Mr. Brydone's and in Mr. Swinburn's travels, there are ſaid to be ſix hundred ſtatues of imaginary monſters, which ſo diſguſt the ſpectators, that the ſtate had once a ſerious deſign of deſtroying them; and yet the very improbable monſters in Ovid's Metamorphoſes have entertained the world for many centuries.

B. The monſters in your Botanic Garden, I hope, are of the latter kind?

P. The candid reader muſt determine.

THE

LOVES OF THE PLANTS.

CANTO II.

AGAIN the Goddeſs ſtrikes the golden lyre,
And tunes to wilder notes the warbling wire;
With ſoft ſuſpended ſtep Attention moves,
And Silence hovers o'er the liſtening groves;
Orb within orb the charmed audience throng,
And the green vault reverberates the ſong.

"Breathe ſoft, ye Gales!" the fair CARLINA cries,
"Bear on broad wings your Votreſs to the ſkies.
"How ſweetly mutable yon orient hues,
"As Morn's fair hand her opening roſes ſtrews;
"How bright, when Iris blending many a ray,
"Binds in embroider'd wreath the brow of Day;
"Soft, when the pendant Moon with luſtres pale
"O'er heav'n's blue arch unfurls her milky veil;
"While from the north long threads of ſilver light
"Dart on ſwift ſhuttles o'er the tiſſued night!

Carlina. l. 7. Carline Thiſtle. Of the claſs Confederate Males. The ſeeds of this and of many other plants of the ſame claſs are furniſhed with a plume, by which admirable mechaniſm they perform long aerial journies, croſſing lakes and deſerts, and are thus diſſeminated far from the original plant, and have much the appearance of a Shuttlecock as they fly. The wings are of different conſtruction, ſome being like a divergent tuft of hairs, others are branched like feathers, ſome are elevated from the crown of the ſeed by a ſlender foot-ſtalk, which gives them a very elegant appearance, others ſit immediately on the crown of the ſeed.

Nature has many other curious vegetable contrivances for the diſperſion of ſeeds: ſee note on Helianthus. But perhaps none of them has more the appearance of deſign than the admirable apparatus of Tillandſia for this purpoſe. This plant grows on the branches of trees, like the miſleto, and never on the ground; the ſeeds are furniſhed with many long threads on their crowns; which, as they are driven forwards by the winds, wrap round the arms of trees, and thus hold them faſt till they vegetate. This is very analogous to the migration of Spiders on the goſſamer, who are ſaid to attach themſelves to the end of a long thread, and riſe thus to the tops of trees or buildings, as the accidental breezes carry them.

" Breathe ſoft, ye Zephyrs! hear my fervent ſighs,
" Bear on broad wings your Votreſs to the ſkies!—
—Plume over plume in long divergent lines
On whale-bone ribs the fair Mechanic joins;
Inlays with eider down the ſilken ſtrings,
And weaves in wide expanſe Dædalian wings;
Round her bold ſons the waving pennons binds,
And walks with angel-ſtep upon the winds.

So on the ſhoreleſs air the intrepid Gaul
Launch'd the vaſt concave of his buoyant ball.—
Journeying on high, the ſilken caſtle glides
Bright as a meteor through the azure tides;
O'er towns, and towers, and temples, wins it's way,
Or mounts ſublime, and gilds the vault of day.
Silent with upturn'd eyes unbreathing crowds
Purſue the floating wonder to the clouds;
And, fluſh'd with tranſport or benumb'd with fear,
Watch, as it riſes, the diminiſh'd ſphere.

—Now leſs and leſs—and now a ſpeck is ſeen;—
And now the fleeting rack obtrudes between!
With bended knees, raiſed arms, and ſuppliant brow,
To every ſhrine with mingled cries they vow.—
" Save him, ye Saints! who o'er the good preſide;
" Bear him, ye Winds! ye Stars benignant! guide."
—The calm Philoſopher in ether ſails,
Views broader ſtars, and breathes in purer gales;
Sees, like a map, in many a waving line
Round Earth's blue plains her lucid waters ſhine;
Sees at his feet the forky lightnings glow,
And hears innocuous thunders roar below.
——Riſe, great MONGOLFIER! urge thy venturous flight
High o'er the Moon's pale ice-reflected light;
High o'er the pearly Star, whoſe beamy horn
Hangs in the eaſt, gay harbinger of morn;
Leave the red eye of Mars on rapid wing,
Jove's ſilver guards, and Saturn's cryſtal ring;
Leave the fair beams, which, iſſuing from afar,
Play with new luſtres round the Georgian ſtar;

Shun with strong oars the Sun's attractive throne,
The sparkling Zodiac, and the milky zone;
Where headlong Comets with increasing force
Thro' other systems bend their blazing course.—
For thee Cassiope her chair withdraws,
For thee the Bear retracts his shaggy paws;
High o'er the North thy golden orb shall roll,
And blaze eternal round the wondering pole.
So Argo, rising from the southern main,
Lights with new stars the blue etherial plain;
With favouring beams the mariner protects,
And the bold course, which first it steer'd, directs.

Inventress of the Woof, fair LINA flings
The flying shuttle through the dancing strings;

For thee the Bear. l. 60. Tibi jam brachia contrahit ardens Scorpius. Virg. Georg. l. 1. 34. A new star appeared in Cassiope's chair in 1572. Herschel's Construction of the Heavens. Phil. Transf. V. 75. p. 266.

Linum. l. 67. Flax. Five males and five females. It was first found on the banks of the Nile. The Linum Lusitanicum, or Portugal flax, has ten males: see the note on Curcuma. Isis was said to invent spinning and weaving: mankind before that time were clothed with the skins of animals. The fable of Arachne was to compliment this new art of spinning and weaving, supposed to surpass in fineness the web of the Spider.

Inlays the broider'd weſt with flowery dyes,
Quick beat the reeds, the pedals fall and riſe;
Slow from the beam the lengths of warp unwind,
And dance and nod the maſſy weights behind.—
Taught by her labours, from the fertile ſoil
Immortal Isis clothed the banks of Nile;
And fair Arachne with her rival loom
Found undeſerved a melancholy doom.—
Five Siſter-nymphs with dewy fingers twine
The beamy flax, and ſtretch the fibre-line;
Quick eddying threads from rapid ſpindles reel,
Or whirl with beating foot the dizzy wheel.
—Charm'd round the buſy Fair *five* ſhepherds preſs,
Praiſe the nice texture of their ſnowy dreſs,
Admire the Artiſts, and the art approve,
And tell with honey'd words the tale of love.

So now, where Derwent rolls his duſky floods
Through vaulted mountains, and a night of woods,

The Nymph, Gossypia, treads the velvet ſod,
And warms with roſy ſmiles the watery God;
His ponderous oars to ſlender ſpindles turns,
And pours o'er maſſy wheels his foamy urns;
With playful charms her hoary lover wins,
And wields his trident,—while the Monarch ſpins.
—Firſt with nice eye emerging Naiads cull
From leathery pods the vegetable wool;

Goſſypia. l. 87. Goſſypium. The cotton plant. On the river Derwent, near Matlock, in Derbyſhire, Sir Richard Arkwright has erected his curious and magnificent machinery for ſpinning cotton, which had been in vain attempted by many ingenious artiſts before him. The cotton-wool is firſt picked from the pods and ſeeds by women. It is then carded by *cylindrical cards*, which move againſt each other, with different velocities. It is taken from theſe by an *iron hand* or comb, which has a motion ſimilar to that of ſcratching, and takes the wool off the cards longitudinally in reſpect to the fibres or ſtaple, producing a continued line looſely cohering, called the *Rove* or *Roving*. This Rove, yet very looſely twiſted, is then received or drawn into a *whirling canniſter*, and is rolled by the centrifugal force in ſpiral lines within it, being yet too tender for the ſpindle. It is then paſſed between *two pairs of rollers*; the ſecond pair moving faſter than the firſt elongate the thread with greater equality than can be done by the hand; and is then twiſted on ſpoles or bobbins.

The great fertility of the Cotton-plant in theſe fine flexile threads, while thoſe from Flax, Hemp, and Nettles, or from the bark of the Mulberry-tree, require a previous putrefaction of the parenchymatous ſubſtance, and much mechanical labour, and afterwards bleaching, renders this plant of great importance to the world. And ſince Sir Richard Arkwright's ingenious machine has not only greatly abbreviated and ſimplified the labour and art of carding and ſpinning the Cotton-wool, but performs both theſe circumſtances *better* than can be done by hand, it is probable that the clothing of this ſmall ſeed will become the principal clothing of mankind; though animal wool and ſilk may be preferable in colder climates, as they are more imperfect conductors of heat, and are thence a warmer clothing.

Emerging Naiads. l. 93. —— eam circum Mileſia vellera Nymphæ
Carpebant, hyali ſaturo fucata colore. Vir. Georg. IV. 334.

With wiry teeth *revolving cards* releaſe
The tanged knots, and ſmooth the ravell'd fleece;
Next moves the *iron hand* with fingers fine,
Combs the wide card, and forms the eternal line;
Slow, with ſoft lips, the *whirling Can* acquires
The tender ſkeins, and wraps in riſing ſpires;
With quicken'd pace *ſucceſſive rollers* move,
And theſe retain, and thoſe extend the *rove*;
Then fly the ſpoles, the rapid axles glow,
And ſlowly circumvolves the labouring wheel below.

Papyra, throned upon the banks of Nile,
Spread her ſmooth leaf, and waved her ſilver ſtyle.

Cyprus. Papyrus. l. 105. Three males, one female. The leaf of this plant was firſt uſed for paper, whence the word *paper*; and leaf, or folium, for a fold of a book. Afterwards the bark of a ſpecies of mulberry was uſed; whence *liber* ſignifies a book, and the bark of a tree. Before the invention of letters mankind may be ſaid to have been perpetually in their infancy, as the arts of one age or country generally died with their inventors. Whence aroſe the policy, which ſtill continues in Hindoſtan, of obliging the ſon to practiſe the profeſſion of his father. After the diſcovery of letters, the facts of Aſtronomy and Chemiſtry became recorded in written language, though the antient hieroglyphic characters for the planets and metals continue in uſe at this day. The antiquity of the invention of muſic, of aſtronomical obſervations, and the manufacture of Gold and Iron, are recorded in Scripture.

—The ſtoried pyramid, the laurel'd buſt,
The trophy'd arch had crumbled into duſt;
The ſacred ſymbol, and the epic ſong,
(Unknown the character, forgot the tongue,)
With each unconquer'd chief, or ſainted maid,
Sunk undiſtinguiſhed in oblivion's ſhade.
Sad o'er the ſcatter'd ruins Genius ſigh'd,
And infant Arts but learn'd to liſp and died.
Till to aſtoniſh'd realms PAPYRA taught
To paint in myſtic colours Sound and Thought.
With Wiſdom's voice to print the page ſublime,
And mark in adamant the ſteps of Time.
—*Three* favour'd youths her ſoft attention ſhare,
The fond diſciples of the ſtudious Fair,

About twenty letters, ten cyphers, and ſeven crotchets, repreſent by their numerous combinations all our ideas and ſenſations! the muſical characters are probably arrived at their perfection, unleſs emphaſis, and tone, and ſwell, could be expreſſed, as well as note and time. Charles the Twelfth, of Sweden, had a deſign to have introduced a numeration by ſquares, inſtead of by decimation, which might have ſerved the purpoſes of philoſophy better than the preſent mode, which is ſaid to be of Arabic invention. The alphabet is yet in a very imperfect ſtate; perhaps ſeventeen letters could expreſs all the ſimple ſounds in the European languages. In China they have not yet learned to divide their words into ſyllables, and are thence neceſſitated to employ many thouſand characters; it is ſaid above eighty thouſand. It is to be wiſhed, in this ingenious age, that the European nations would accord to reform our alphabet.

Hear her ſweet voice, the golden proceſs prove;
Gaze, as they learn; and, as they liſten, love.
The firſt from Alpha to Omega joins
The letter'd tribes along the level lines;
Weighs with nice ear the vowel, liquid, ſurd,
And breaks in ſyllables the volant word.
Then forms *the next* upon the marſhal'd plain
In deepening ranks his dexterous cypher-train;
And counts, as wheel the decimating bands,
The dews of Ægypt, or Arabia's ſands.
And then *the third* on four concordant lines
Prints the lone crotchet, and the quaver joins;
Marks the gay trill, the ſolemn pauſe inſcribes,
And parts with bars the undulating tribes.
Pleaſed round her cane-wove throne, the applauding croud
Clapp'd their rude hands, their ſwarthy foreheads bow'd;
With loud acclaim "a preſent God!" they cry'd,
"A preſent God!" rebellowing ſhores reply'd.—
Then peal'd at intervals with mingled ſwell
The echoing harp, ſhrill clarion, horn, and ſhell;

While Bards ecstatic, bending o'er the lyre,
Struck deeper chords, and wing'd the song with fire.
Then mark'd Astronomers with keener eyes
The Moon's refulgent journey through the skies;
Watch'd the swift Comets urge their blazing cars,
And weigh'd the Sun with his revolving Stars.
High raised the Chymists their Hermetic wands,
(And changing forms obey'd their waving hands,)
Her treasured Gold from Earth's deep chambers tore,
Or fused and harden'd her chalybeate ore.
All with bent knee from fair Papyra claim
Wove by her hands the wreath of deathless fame.
——Exulting Genius crown'd his darling child,
The young arts clasp'd her knees, and Virtue smiled.

So now Delany forms her mimic bowers,
Her paper foliage, and her silken flowers;

So now Delany. l. 155. Mrs. Delany has finished nine hundred and seventy accurate and elegant representations of different vegetables with the parts of their flowers, fructification, &c. according with the classification of Linneus, in what she terms paper-mosaic. She began this work at the age of 74, when her sight would no longer serve her to paint,

Her virgin train the tender ſciſſars ply,
Vein the green leaf, the purple petal dye:
Round wiry ſtems the flaxen tendril bends,
Moſs creeps below, and waxen fruit impends.
Cold Winter views amid his realms of ſnow
DELANY's vegetable ſtatues blow;
Smooths his ſtern brow, delays his hoary wing,
And eyes with wonder all the blooms of ſpring.

The gentle LAPSANA, NYMPHÆA fair,
And bright CALENDULA with golden hair,

in which ſhe much excelled: between her age of 74 and 82, at which time her eyes quite failed her, ſhe executed the curious Hortus ſiccus above mentioned, which I ſuppoſe contains a greater number of plants than were ever before drawn from the life by any one perſon. Her method conſiſted in placing the leaves of each plant with the petals, and all the other parts of the flowers on coloured paper, and cutting them with ſciſſars accurately to the natural ſize and form, and then paſting them on a dark ground; the effect of which is wonderful, and their accuracy leſs liable to fallacy than drawings. She is at this time (1788) in her 89th year, with all the powers of a fine underſtanding ſtill unimpaired. I am informed another very ingenious lady, Mrs. North, is conſtructing a ſimilar Hortus ſiccus, or Paper-garden; which ſhe executes on a ground of vellum with ſuch elegant taſte and ſcientific accuracy, that it cannot fail to become a work of ineſtimable value.

Lapſana Nymphæa alba, Calendula. l. 165. And many other flowers cloſe and open their petals at certain hours of the day; and thus conſtitute what Linneus calls the Horologe, or Watch of Flora. He enumerates 46 flowers, which poſſeſs this kind of ſenſibility. I ſhall mention a few of them with their reſpective hours of riſing and ſetting,

Watch with nice eye the Earth's diurnal way,
Marking her ſolar and ſidereal day,
Her ſlow nutation, and her varying clime,
And trace with mimic art the march of Time;
Round his light foot a magic chain they fling,
And count the quick vibrations of his wing.—
Firſt in its brazen cell reluctant roll'd
Bends the dark ſpring in many a ſteely fold.

as Linneus terms them. He divides them firſt into *meteoric* flowers, which leſs accurately obſerve the hour of unfolding, but are expanded ſooner or later, according to the cloudineſs, moiſture, or preſſure of the atmoſphere. 2d. *Tropical* flowers open in the morning and cloſe before evening every day; but the hour of the expanding becomes earlier or later, as the length of the day increaſes or decreaſes. 3dly. *Æquinoctial* flowers, which open at a certain and exact hour of the day, and for the moſt part cloſe at another determinate hour.

Hence the Horologe or Watch of Flora is formed from numerous plants, of which the following are thoſe moſt common in this country. Leontodon taraxacum, Dandelion, opens at 5—6, cloſes at 8—9. Hieracium piloſella, mouſe-ear hawkweed, opens at 8, cloſes at 2. Sonchus lævis, ſmooth Sow-thiſtle, at 5 and at 11—12. Lactuca ſativa, cultivated Lettice, at 7 and 10. Tragopogon luteum, yellow Goatſbeard, at 3—5 and at 9—10. Lapſana, nipplewort, at 5—6 and at 10—1. Nymphæa alba, white water lily, at 7 and 5. Papaver nudicaule, naked poppy, at 5 and at 7. Hemerocallis fulva, tawny Day-lily, at 5 and at 7—8. Convolvulus, at 5—6. Malva, Mallow, at 9—10. and at 1. Arenarea purpurea, purple Sandwort, at 9—10, and at 2—3. Anagallis, pimpernel, at 7—8. Portulaca hortenſis, garden Purſlain, at 9—10, and at 11—12. Dianthus prolifer, proliferous Pink, at 8 and at 1. Cichoreum, Succory, at 4—5, Hypochæris, at 6—7, and at 4—5. Crepis, at 4—5, and at 10—11. Picris, at 4—5, and at 12. Calendula field, at 9, and at 3. Calendula African, at 7, and at 3—4.

As theſe obſervations were probably made in the botanic gardens at Upſal, they muſt require farther attention to ſuit them to our climate. See Stillingfleet's Calendar of Flora.

On ſpiral braſs is ſtretch'd the wiry thong
Tooth urges tooth, and wheel drives wheel along;
In diamond-eyes the poliſh'd axles flow,
Smooth ſlides the hand, the balance pants below.
Round the white circlet in relievo bold,
A Serpent twines his ſcaly length in gold;
And brightly pencil'd on the enamel'd ſphere
Live the fair trophies of the paſſing year.
—Here *Time*'s huge fingers graſp his giant mace,
And daſh proud Superſtition from her baſe;
Rend her ſtrong towers and gorgeous fanes, and ſhed
The crumbling fragments round her guilty head.
There the gay *Hours*, whom wreaths of roſes deck,
Lead their young trains amid the cumberous wreck,
And, ſlowly purpling o'er the mighty waſte,
Plant the fair growths of Science and of Taſte.
While each light *Moment*, as it dances by
With feathery foot and pleaſure-twinkling eye,
Feeds from its baby-hand, with many a kiſs,
The callow neſtlings of domeſtic Bliſs.

As yon gay clouds, which canopy the ſkies,
Change their thin forms, and loſe their lucid dyes;
So the ſoft bloom of Beauty's vernal charms
Fades in our eyes, and withers in our arms.
—Bright as the ſilvery plume, or pearly ſhell,
The ſnow-white roſe, or lily's virgin bell,
The fair HELLEBORAS attractive ſhone,
Warm'd every Sage, and every Shepherd won.—
Round the gay ſiſters preſs the *enamour'd bands*,
And ſeek with ſoft ſolicitude their hands.
—Erewhile how chang'd!—in dim ſuffuſion lies
The glance divine, that lighten'd in their eyes;
Cold are thoſe lips, where ſmiles ſeductive hung,
And the weak accents linger on their tongue;

Helleborus. l. 201. Many males, many females. The Helleborus niger, or Chriſtmas roſe, has a large beautiful white flower, adorned with a circle of tubular two-lipp'd nectaries. After impregnation the flower undergoes a remarkable change, the nectaries drop off, but the white corol remains, and gradually becomes quite green. This curious metamorphoſe of the corol, when the nectaries fall off, ſeems to ſhew that the white juices of the corol were before carried to the nectaries, for the purpoſe of producing honey: becauſe when theſe nectaries fall off, no more of the white juice is ſecreted in the corol, but it becomes green, and degenerates into a calyx. See note on Lonicera. The nectary of the Tropæolum, garden naſturtion, is a coloured horn growing from the calyx.

Each roſeate feature fades to livid green—
—Diſguſt with face averted ſhuts the ſcene.

So from his gorgeous throne, which awed the world,
The mighty Monarch of Aſſyria hurl'd,
Sojourn'd with brutes beneath the midnight ſtorm,
Changed by avenging Heaven in mind and form.
—Prone to the earth He bends his brow ſuperb,
Crops the young floret and the bladed herb;
Lolls his red tongue, and from the reedy ſide
Of ſlow Euphrates laps the muddy tide.
Long eagle plumes his arching neck inveſt,
Steal round his arms, and claſp his ſharpen'd breaſt;
Dark brinded hairs, in briſtling ranks, behind,
Riſe o'er his back, and ruſtle in the wind;
Clothe his lank ſides, his ſhrivel'd limbs ſurround,
And human hands with talons print the ground.
Silent in ſhining troops the Courtier-throng
Purſue their monarch, as he crawls along;

E'en Beauty pleads in vain with ſmiles and tears,
Nor Flattery's ſelf can pierce his pendant ears.

Two Siſter-Nymphs to Ganges' flowery brink
Bend their light ſteps, the lucid water drink,
Wind through the dewy rice, and nodding canes,
(As *eight* black Eunuchs guard the ſacred plains),
With playful malice watch the ſcaly brood,
And ſhower the inebriate berries on the flood.—
Stay in your cryſtal chambers, ſilver tribes!
Turn your bright eyes, and ſhun the dangerous bribes;
The tramel'd net with leſs deſtruction ſweeps
Your curling ſhallows, and your azure deeps;
With leſs deceit, the gilded fly beneath,
Lurks the fell hook unſeen,—to taſte is death!
—Dim your ſlow eyes, and dull your pearly coat,
Drunk on the waves your languid forms ſhall float,

Two Siſter-Nymphs. l. 229. Meniſpermum, Cocculus. Indian berry. Two houſes, twelve males. In the female flower there are two ſtyles and eight filaments without anthers on their ſummits; which are called by Linneus eunuchs. See the note on Curcuma. The berry intoxicates fiſh. Saint Anthony of Padua, when the people refuſed to hear him, preached to the fiſh, and converted them. Addiſon's Travels in Italy.

On uſeleſs fins in giddy circles play,
And Herons and Otters ſeize you for their prey.—

So, when the Saint from Padua's graceleſs land
In ſilent anguiſh ſought the barren ſtrand,
High on the ſhatter'd beech ſublime He ſtood,
Still'd with his waving arm the babbling flood;
" To Man's dull ear," He cry'd, " I call in vain,
" Hear me, ye ſcaly tenants of the main!"—
Miſſhapen Seals approach in circling flocks,
In duſky mail the Tortoiſe climbs the rocks,
Torpedoes, Sharks, Rays, Porpus, Dolphins, pour
Their twinkling ſquadrons round the glittering ſhore;
With tangled fins, behind, huge Phocæ glide,
And Whales and Grampi ſwell the diſtant tide.
Then kneel'd the hoary Seer, to Heav'n addreſs'd
His fiery eyes, and ſmote his ſounding breaſt;
" Bleſs ye the Lord," with thundering voice he cry'd,
" Bleſs ye the Lord!" the bending ſhores reply'd;

The winds and waters caught the ſacred word,
And mingling echoes ſhouted " Bleſs the Lord!"
The liſtening ſhoals the quick contagion feel,
Pant on the floods, inebriate with their zeal,
Ope their wide jaws, and bow their ſlimy heads,
And daſh with frantic fins their foamy beds.

Sopha'd on ſilk, amid her charm-built towers,
Her meads of aſphodel, and amaranth bowers,
Where Sleep and Silence guard the ſoft abodes,
In ſullen apathy PAPAVER nods.
Faint o'er her couch in ſcintillating ſtreams
Paſs the thin forms of Fancy and of Dreams;

Papaver. l. 207. Poppy. Many males, many females. The plants of this claſs are almoſt all of them poiſonous; the fineſt opium is procured by wounding the heads of large poppies with a three-edged knife, and tying muſcle-ſhells to them to catch the drops. In ſmall quantities it exhilarates the mind, raiſes the paſſions, and invigorates the body: in large ones it is ſucceeded by intoxication, languor, ſtupor, and death. It is cuſtomary in India for a meſſenger to travel above a hundred miles without reſt or food, except an appropriated bit of opium for himſelf, and a larger one for his horſe at certain ſtages. The emaciated and decrepid appearance, with the ridiculous and idiotic geſtures, of the opium-eaters in Conſtantinople is well deſcribed in the Memoirs of Baron de Tott.

Froze by inchantment on the velvet ground,
Fair youths and beauteous ladies glitter round;
On cryſtal pedeſtals they ſeem to ſigh,
Bend the meek knee, and lift the imploring eye.
—And now the Sorcereſs bares her ſhrivel'd hand,
And circles thrice in air her ebon wand;
Fluſh'd with new life deſcending ſtatues talk,
The pliant marble ſoftening as they walk;
With deeper ſobs reviving lovers breathe,
Fair boſoms riſe, and ſoft hearts pant beneath;
With warmer lips relenting damſels ſpeak,
And kindling bluſhes tinge the Parian cheek;
To viewleſs lutes aerial voices ſing,
And hovering loves are heard on ruſtling wing.
—She waves her wand again!—freſh horrors ſeize
Their ſtiffening limbs, their vital currents freeze;
By each cold nymph her marble lover lies,
And iron ſlumbers ſeal her glaſſy eyes.
So with his dread Caduceus HERMES led
From the dark regions of the impriſon'd dead,

Or drove in ſilent ſhoals the lingering train
To Night's dull ſhore, and PLUTO's dreary reign.

So with her waving pencil CREWE commands
The realms of Taſte, and Fancy's fairy lands;
Calls up with magic voice the ſhapes, that ſleep
In earth's dark boſom, or unfathom'd deep;
That ſhrined in air on viewleſs wings aſpire,
Or blazing bathe in elemental fire.
As with nice touch her plaſtic hand ſhe moves,
Riſe the fine forms of Beauties, Graces, Loves;
Kneel to the fair Inchantreſs, ſmile or ſigh,
And fade or flouriſh, as ſhe turns her eye.

Fair CISTA, rival of the roſy dawn,
Call'd her light choir, and trod the dewy lawn;

So with her waving pencil. l. 295. Alluding to the many beautiful paintings by Miſs EMMA CREWE, to whom the author is indebted for the very elegant Frontiſpiece, where Flora, at play with Cupid, is loading him with garden-tools.

Ciſtus labdaniferus. l. 305. Many males, one female. The petals of this beautiful and fragrant ſhrub, as well as of the Œnothera, tree-primroſe, and others, continue ex-

Hail'd with rude melody the new-born May,
As cradled yet in April's lap ſhe lay.

I.

" Born in yon blaze of orient ſky,
" Sweet May ! thy radiant form unfold,
" Uncloſe thy blue voluptuous eye,
" And wave thy ſhadowy locks of gold.

II.

" For Thee the fragrant zephyrs blow,
" For Thee deſcends the ſunny ſhower ;
" The rills in ſofter murmurs flow,
" And brighter bloſſoms gem the bower.

panded but a few hours, falling off about noon, or ſoon after, in hot weather. The moſt beautiful flowers of the Cactus grandiflorus (ſee Cerea) are of equally ſhort duration, but have their exiſtence in the night. And the flowers of the Hibiſcus trionum are ſaid to continue but a ſingle hour. The courtſhip between the males and females in theſe flowers might be eaſily watched; the males are ſaid to approach and recede from the females alternately. The flowers of the Hibiſcus ſinenſis, mutable roſe, live in the Weſt Indies, their native climate, but one day; but have this remarkable property, they are white at their firſt expanſion, then change to deep red, and become purple as they decay.

The gum or reſin of this fragrant vegetable is collected from extenſive underwoods of it in the Eaſt by a ſingular contrivance. Long leathern thongs are tied to poles and cords, and drawn over the tops of theſe ſhrubs about noon; which thus collect the duſt of the anthers, which adheres to the leather, and is occaſionally ſcraped off. Thus in ſome degree is the manner imitated, in which the bee collects on his thighs and legs the ſame material for the conſtruction of his combs.

III.

" Light Graces drefs'd in flowery wreaths,
" And tiptoe Joys their hands combine;
" And Love his fweet contagion breathes,
" And laughing dances round thy fhrine.

IV.

" Warm with new life the glittering throngs
" On quivering fin and ruftling wing
" Delighted join their votive fongs,
" And hail thee, GODDESS OF THE SPRING."

O'er the green brinks of Severn's oozy bed,
In changeful rings, her fprightly troops She led;
PAN tripp'd before, where Eudnefs fhades the mead,
And blew with glowing lip his fevenfold reed;
Emerging Naiads fwell'd the jocund ftrain,
And aped with mimic ftep the dancing train.—

Sevenfold reed. l. 328. The fevenfold reed, with which Pan is frequently defcribed, feems to indicate, that he was the inventor of the mufical gamut.

"I faint, I fall!"—*at noon* the Beauty cried,
"Weep o'er my tomb, ye Nymphs!"—and ſunk and died.
—Thus, when white Winter o'er the ſhivering clime
Drives the ſtill ſnow, or ſhowers the ſilver rime;
As the lone ſhepherd o'er the dazzling rocks
Prints his ſteep ſtep, and guides his vagrant flocks;
Views the green holly veil'd in net-work nice,
Her vermil cluſters twinkling in the ice;
Admires the lucid vales, and ſlumbering floods,
Suſpended cataracts, and cryſtal woods,
Tranſparent towns, with ſeas of milk between,
And eyes with tranſport the refulgent ſcene:
If breaks the ſunſhine o'er the ſpangled trees,
Or flits on tepid wing the weſtern breeze,
In liquid dews deſcends the tranſient glare,
And all the glittering pageant melts in air.

Where Andes hides his cloud-wreath'd creſt in ſnow,
And roots his baſe on burning ſands below;

CINCHONA, faireſt of Peruvian maids,
To Health's bright Goddeſs in the breezy glades
On Quito's temperate plain an altar rear'd,
Trill'd the loud hymn, the ſolemn prayer preferr'd:
Each balmy bud ſhe cull'd, and honey'd flower,
And hung with fragrant wreaths the ſacred bower;
Each pearly ſea ſhe ſearch'd, and ſparkling mine,
And piled their treaſures on the gorgeous ſhrine;
Her ſuppliant voice for ſickening Loxa raiſed,
Sweet breath'd the gale, and bright the cenſor blazed.
"—Divine HYGEIA! on thy votaries bend
" Thy angel-looks, oh, hear us, and defend!
" While ſtreaming o'er the night with baleful glare
" The ſtar of Autumn rays his miſty hair;
" Fierce from his fens the Giant AGUE ſprings,
" And wrapp'd in fogs deſcends on vampire wings;

Cinchona. l. 349. Peruvian bark-tree. Five males, and one female. Several of theſe trees were felled for other purpoſes into a lake, when an epidemic fever of a very mortal kind prevailed at Loxa in Peru, and the woodmen, accidentally drinking the water, were cured; and thus were diſcovered the virtues of this famous drug.

" Before, with ſhuddering limbs cold tremor reels,
" And Fever's burning noſtril dogs his heels;
" Loud claps the grinning Fiend his iron hands,
" Stamps with black hoof, and ſhouts along the lands;
" Withers the damaſk cheek, unnerves the ſtrong,
" And drives with ſcorpion-laſh the ſhrieking throng.
" Oh, Goddeſs! on thy kneeling votaries bend
" Thy angel-looks, oh, hear us, and defend!"
—HYGEIA, leaning from the bleſt abodes,
The cryſtal manſions of the immortal gods,
Saw the ſad Nymph uplift her dewy eyes,
Spread her white arms, and breathe her fervid ſighs;
Call'd to her fair aſſociates, Youth and Joy,
And ſhot all radiant through the glittering ſky;
Looſe waved behind her golden train of hair,
Her ſapphire mantle ſwam diffuſed in air.—
O'er the grey matted moſs, and panſied ſod,
With ſtep ſublime the glowing Goddeſs trod,
Gilt with her beamy eye the conſcious ſhade,
And with her ſmile celeſtial bleſs'd the maid.

" Come to my arms," with ſeraph voice ſhe cries,
" Thy vows are heard, benignant Nymph! ariſe;
" Where yon aſpiring trunks fantaſtic wreath
" Their mingled roots, and drink the rill beneath,
" Yield to the biting axe thy ſacred wood,
" And ſtrew the bitter foliage on the flood."
In ſilent homage bow'd the bluſhing maid,—
Five youths athletic haſten to her aid,
O'er the ſcar'd hills re-echoing ſtrokes reſound,
And headlong foreſts thunder on the ground.
Round the dark roots, rent bark, and ſhatter'd boughs,
From ocherous beds the ſwelling fountain flows;
With ſtreams auſtere its winding margin laves,
And pours from vale to vale its duſky waves.
—As the pale ſquadrons, bending o'er the brink,
View with a ſigh their alter'd forms, and drink;
Slow-ebbing life with refluent crimſon breaks
O'er their wan lips, and paints their haggard cheeks:
Through each fine nerve rekindling tranſports dart,
Light the quick eye, and ſwell the exulting heart.

—Thus ISRAEL's heav'n-taught chief o'er tracklefs fands
Led to the fultry rock his murmuring bands.
Bright o'er his brows the forky radiance blazed,
And high in air the rod divine He raifed.—
Wide yawns the cliff!—amid the thirfty throng
Rufh the redundant waves, and fhine along;
With gourds, and fhells, and helmets, prefs the bands,
Ope their parch'd lips, and fpread their eager hands,
Snatch their pale infants to the exuberant fhower,
Kneel on the fhatter'd rock, and blefs the Almighty Power.

Bolfter'd with down, amid a thoufand wants,
Pale Dropfy rears his bloated form, and pants;
" Quench me, ye cool pellucid rills!" he cries,
Wets his parch'd tongue, and rolls his hollow eyes.
So bends tormented TANTALUS to drink,
While from his lips the refluent water fhrink;
Again the rifing ftream his bofom laves,
And Thirft confumes him 'mid circumfluent waves.

—Divine HYGEIA, from the bending ſky
Deſcending, liſtens to his piercing cry;
Aſſumes bright DIGITALIS' dreſs and air,
Her ruby cheek, white neck, and raven hair;
Four youths protect her from the circling throng,
And like the Nymph the Goddeſs ſteps along.—
O'er Him She waves her ſerpent-wreathed wand,
Cheers with her voice, and raiſes with her hand,
Warms with rekindling bloom his viſage wan,
And charms the ſhapeleſs monſter into man.

Digitalis. l. 425. Of the claſs Two Powers. Four males, one female. Foxglove. The effect of this plant in that kind of Dropſy, which is termed anaſarca, where the legs and thighs are much ſwelled, attended with great difficulty of breathing, is truly aſtoniſhing. In the aſcites accompanied with anaſarca of people paſt the meridian of life, it will alſo ſometimes ſucceed. The method of adminiſtering it requires ſome caution, as it is liable, in greater doſes, to induce very violent and debilitating ſickneſs, which continues one or two days, during which time the dropſical collection, however, diſappears. One large ſpoonful, or half an ounce, of the following decoction, given twice a day, will generally ſucceed in a few days. But in more robuſt people, one large ſpoonful every two hours, till four ſpoonfuls are taken, or till ſickneſs occurs, will evacuate the dropſical ſwellings with greater certainty, but is liable to operate more violently. Boil four ounces of the freſh leaves of purple Foxglove (which leaves may be had at all ſeaſons of the year) from two pints of water to twelve ounces; add to the ſtrained liquor, while yet warm, three ounces of rectified ſpirit of wine. A theory of the effects of this medicine, with many ſucceſsful caſes, may be ſeen in a pamphlet, called "Experiments on Mucilaginous and Purulent Matter," publiſhed by Dr. Darwin, in 1780. Sold by Cadell, London.

So when Contagion with mephitic breath
And wither'd Famine urged the work of death;
Marſeilles' good Biſhop, London's generous Mayor,
With food and faith, with medicine and with prayer,
Raiſed the weak head, and ſtayed the parting ſigh,
Or with new life relumed the ſwimming eye.—
—And now, PHILANTROPY! thy rays divine
Dart round the globe from Zembla to the Line;
O'er each dark priſon plays the cheering light,
Like northern luſtres o'er the vault of night.—

Marſeilles' good Biſhop. l. 435. In the year 1720 and 1722, the Plague made dreadful havock at Marſeilles; at which time the Biſhop was indefatigable in the execution of his paſtoral office, viſiting, relieving, encouraging, and abſolving the ſick with extreme tenderneſs; and though perpetually expoſed to the infection, like Sir John Lawrence, mentioned below, they both are ſaid to have eſcaped the diſeaſe.

London's generous Mayor. l. 435. During the great Plague at London in the year 1665, Sir John Lawrence, the then Lord Mayor, continued the whole time in the city; heard complaints and redreſſed them; enforced the wiſeſt regulations then known, and ſaw them executed. The day after the diſeaſe was known with certainty to be the Plague, above 40,000 ſervants were diſmiſſed, and turned into the ſtreets to periſh, for no one would receive them into their houſes; and the villages near London drove them away with pitch-forks and fire-arms. Sir John Lawrence ſupported them all, as well as the needy who were ſick, at firſt by expending his own fortune, till ſubſcriptions could be ſolicited and received from all parts of the nation. *Journal of the Plague-year. Printed for E. Nutt, &c. at the R. Exchange,* 1722.

From realm to realm, with croſs or creſcent crown'd,
Where'er Mankind and Miſery are found,
O'er burning ſands, deep waves, or wilds of ſnow,
Thy Howard journeying ſeeks the houſe of woe.
Down many a winding ſtep to dungeons dank,
Where anguiſh wails aloud, and fetters clank;
To caves beſtrew'd with many a mouldering bone,
And cells, whoſe echoes only learn to groan;
Where no kind bars a whiſpering friend diſcloſe,
No ſunbeam enters, and no zephyr blows,
He treads, inemulous of fame or wealth,
Profuſe of toil, and prodigal of health,
With ſoft aſſuaſive eloquence expands
Power's rigid heart, and opes his clenching hands;
Leads ſtern-ey'd Juſtice to the dark domains,
If not to ſever, to relax the chains;
Or guides awaken'd Mercy through the gloom,
And ſhews the priſon, ſiſter to the tomb!—
Gives to her babes the ſelf-devoted wife,
To her fond huſband liberty and life!—

—The Spirits of the Good, who bend from high
Wide o'er these earthly scenes their partial eye,
When first, array'd in VIRTUE's purest robe,
They saw her HOWARD traversing the globe;
Saw round his brows her sun-like Glory blaze
In arrowy circles of unwearied rays;
Mistook a Mortal for an Angel-Guest,
And ask'd what Seraph-foot the earth imprest.
—Onward he moves!—Disease and Death retire,
And murmuring Demons hate him, and admire."

Here paused the Goddess—on HYGEIA's shrine
Obsequious Gnomes repose the lyre divine;
Descending Sylphs relax the trembling strings,
And catch the rain-drops on their shadowy wings.
—And now her vase a modest Naiad fills
With liquid crystal from her pebbly rills;
Piles the dry cedar round her silver urn,
(Bright climbs the blaze, the crackling faggots burn),

Culls the green herb of China's envy'd bowers,
In gaudy cups the ſteamy treaſure pours;
And, ſweetly ſmiling, on her bended knee
Preſents the fragrant quinteſſence of Tea.

INTERLUDE II.

Bookseller. THE monſters of your Botanic Garden are as ſurpriſing as the bulls with brazen feet, and the fire-breathing dragons, which guarded the Heſperian fruit; yet are they not diſguſting, nor miſchievous: and in the manner you have chained them together in your exhibition, they ſucceed each other amuſingly enough, like prints of the London Cries, wrapped upon rollers, with a glaſs before them. In this at leaſt they reſemble the monſters in Ovid's Metamorphoſes; but your ſimilies, I ſuppoſe, are Homeric?

Poet. The great Bard well underſtood how to make uſe of this kind of ornament in Epic Poetry. He brings his valiant heroes into the field with much parade, and ſets them a fighting with great fury; and then, after a few thruſts and parries, he introduces a long ſtring of ſimilies. During this the battle is ſuppoſed to continue; and thus the time neceſſary for the action is gained in our imaginations; and a degree of probability produced, which contributes to the temporary deception or reverie of the reader.

But the ſimilies of Homer have another agreeable characteriſtic; they do not quadrate, or go upon all fours (as it is called), like the more formal ſimilies of ſome modern writers; any one reſembling feature ſeems to be with him a ſufficient excuſe for the introduction of this kind of digreſſion; he then proceeds to deliver ſome agreeable poetry on this new ſubject, and thus converts every ſimilie into a kind of ſhort epiſode.

B. Then a ſimile ſhould not very accurately reſemble the ſubject?

P. No; it would then become a philoſophical analogy, it would be ratiocination inſtead of poetry: it need only ſo far reſemble the

ſubject, as poetry itſelf ought to reſemble nature. It ſhould have ſo much ſublimity, beauty, or novelty, as to intereſt the reader; and ſhould be expreſſed in pictureſque language, ſo as to bring the ſcenery before his eye; and ſhould laſtly bear ſo much veri-ſimilitude as not to awaken him by the violence of improbability or incongruity.

B. May not the reverie of the reader be diſſipated or diſturbed by diſagreeable images being preſented to his imagination, as well as by improbable or incongruous ones?

P. Certainly; he will endeavour to rouſe himſelf from a diſagreeable reverie, as from the night-mare. And from this may be diſcovered the line of boundary between the Tragic and the Horrid; which line, however, will veer a little this way or that, according to the prevailing manners of the age or country, and the peculiar aſſociation of ideas, or idioſyncracy of mind, of individuals. For inſtance, if an artiſt ſhould repreſent the death of an officer in battle, by ſhewing a little blood on the boſom of his ſhirt, as if a bullet had there penetrated, the dying figure would affect the beholder with pity; and if fortitude was at the ſame time expreſſed in his countenance, admiration would be added to our pity. On the contrary, if the artiſt ſhould chuſe to repreſent his thigh as ſhot away by a cannon ball, and ſhould exhibit the bleeding fleſh and ſhattered bone of the ſtump, the picture would introduce into our minds ideas from a butcher's ſhop, or a ſurgeon's operation room, and we ſhould turn from it with diſguſt. So if characters were brought upon the ſtage with their limbs disjointed by torturing inſtruments, and the floor covered with clotted blood and ſcattered brains, our theatric reverie would be deſtroyed by diſguſt, and we ſhould leave the play-houſe with deteſtation.

The Painters have been more guilty in this reſpect than the Poets; the cruelty of Apollo in flaying Marcias alive is a favourite ſubject with the antient artiſts: and the tortures of expiring mar-

tyrs have disgraced the modern ones. It requires little genius to exhibit the muscles in convulsive action either by the pencil or the chissel, because the interstices are deep, and the lines strongly defined: but those tender gradations of muscular action, which constitute the graceful attitudes of the body, are difficult to conceive or to execute, except by a master of nice discernment and cultivated taste.

B. By what definition would you distinguish the Horrid from the Tragic?

P. I suppose the latter consist of Distress attended with Pity, which is said to be allied to Love, the most agreeable of all our passions; and the former in distress, accompanied with Disgust, which is allied to Hate, and is one of our most disagreeable sensations. Hence, when horrid scenes of cruelty are represented in pictures, we wish to disbelieve their existence, and voluntarily exert ourselves to escape from the deception: whereas the bitter cup of true Tragedy is mingled with some sweet consolatory drops, which endear our tears, and we continue to contemplate the interesting delusion with a delight, which is not easy to explain.

B. Has not this been explained by Lucretius, where he describes a shipwreck; and says, the Spectators receive pleasure from feeling themselves safe on land? and by Akenside, in his beautiful poem on the Pleasures of Imagination, who ascribes it to our finding objects for the due exertion of our passions?

P. We must not confound our sensations at the contemplation of real misery with those which we experience at the scenical representations of tragedy. The spectators of a shipwreck may be attracted by the dignity and novelty of the object; and from these may be said to receive pleasure; but not from the distress of the sufferers. An ingenious writer who has criticised this dialogue in

the English Review for August, 1789, adds, that one great source of our pleasure from scenical distress arises from our, at the same time, generally contemplating one of the noblest objects of nature, that of Virtue triumphant over difficulty and oppression, or supporting its votary under every suffering: or, where this does not occur, that our minds are relieved by the justice of some signal punishment awaiting the delinquent. But, besides this, at the exhibition of a good tragedy, we are not only amused by the dignity and novelty, and beauty, of the objects before us; but, if any distressful circumstances occur too forcibly for our sensibility, we can voluntarily exert ourselves, and recollect, that the scenery is not real: and thus not only the pain, which we had received from the apparent distress, is lessened, but a new source of pleasure is opened to us, similar to that which we frequently have felt on awaking from a distressful dream; we are glad that it is not true. We are at the same time unwilling to relinquish the pleasure which we receive from the other interesting circumstances of the drama; and on that account quickly permit ourselves to relapse into the delusion; and thus alternately believe and disbelieve, almost every moment, the existence of the objects represented before us.

B. Have those two sovereigns of poetic land, HOMER and SHAKESPEAR, kept their works entirely free from the Horrid?—or even yourself in your third Canto?

P. The descriptions of the mangled carcases of the companions of Ulysses, in the cave of Polypheme, is in this respect certainly objectionable, as is well observed by Scaliger. And in the play of Titus Andronicus, if that was written by Shakespear (which from its internal evidence I think very improbable,) there are many horrid and disgustful circumstances. The following Canto is submitted to the candour of the critical reader, to whose opinion I shall submit in silence.

THE

LOVES OF THE PLANTS.

CANTO III.

AND now the Goddeſs ſounds her ſilver ſhell,
And ſhakes with deeper tones the inchanted dell;
Pale, round her graſſy throne, bedew'd with tears,
Flit the thin forms of Sorrows, and of Fears;
Soft Sighs reſponſive whiſper to the chords,
And Indignations half-unſheath their ſwords.

"Thrice round the grave Circæa prints her tread,
And chaunts the numbers, which diſturb the dead;
Shakes o'er the holy earth her ſable plume,
Waves her dread wand, and ſtrikes the echoing tomb!
—Pale ſhoot the ſtars acroſs the troubled night,
The tim'rous moon withholds her conſcious light;
Shrill ſcream the famiſh'd bats, and ſhivering owls,
And loud and long the dog of midnight howls!—

Circæa. l. 7. Enchanters Nightſhade. Two males, one female. It was much celebrated in the myſteries of witchcraft, and for the purpoſe of raiſing the devil, as its name imports. It grows amid the mouldering bones and decayed coffins in the ruinous vaults of Sleaford church in Lincolnſhire. The ſuperſtitious ceremonies or hiſtories belonging to ſome vegetables have been truly ridiculous; thus the Druids are ſaid to have cropped the Miſleto with a golden axe or ſickle; and the Bryony, or Mandrake, was ſaid to utter a ſcream when its root was drawn from the ground; and that the animal which drew it up became diſeaſed and ſoon died: on which account, when it was wanted for the purpoſe of medicine, it was uſual to looſen and remove the earth about the root, and then to tie it by means of a cord to a dog's tail, who was whipped to pull it up, and was then ſuppoſed to ſuffer for the impiety of the action. And even at this day bits of dried root of Peony are rubbed ſmooth, and ſtrung, and ſold under the name of Anodyne necklaces, and tied round the necks of children, to facilitate the growth of their teeth! add to this, that in Price's Hiſtory of Cornwall, a book publiſhed about ten years ago, the Virga Divinatoria, or Divining Rod, has a degree of credit given to it. This rod is of hazle, or other light wood, and held horizontally in the hand, and is ſaid to bow towards the ore whenever the Conjuror walks over a mine. A very few years ago, in France, and even in England, another kind of divining rod has been uſed to diſcover ſprings of water in a ſimilar manner, and gained ſome credit. And in this very year, there were many in France, and ſome in England, who underwent an enchantment without any divining rod at all, and believed themſelves to be affected by an inviſible agent, which the Enchanter called Animal Magnetiſm!

—Then yawns the burſting ground!—*two* imps obſcene
Riſe on broad wings, and hail the baleful queen;
Each with dire grin ſalutes the potent wand,
And leads the Sorcereſs with his ſooty hand;
Onward they glide, where ſheds the ſickly yew
O'er many a mouldering bone its nightly dew;
The ponderous portals of the church unbar,—
Hoarſe on their hinge the ponderous portals jar;
As through the colour'd glaſs the moon-beam falls,
Huge ſhapeleſs ſpectres quiver on the walls;
Low murmurs creep along the hollow ground,
And to each ſtep the pealing ailes reſound;
By glimmering lamps, protecting ſaints among,
The ſhrines all trembling as they paſs along,
O'er the ſtill choir with hideous laugh they move,
(Fiends yell below, and angels weep above!)
Their impious march to God's high altar bend,
With feet impure the ſacred ſteps aſcend;
With wine unbleſs'd the holy chalice ſtain,
Aſſume the mitre, and the cope profane;

To heaven their eyes in mock devotion throw,
And to the crofs with horrid mummery bow;
Adjure by mimic rites the powers above,
And plight alternate their Satanic love.

Avaunt, ye Vulgar! from her facred groves
With maniac ftep the Pythian LAURA moves;
Full of the God her labouring bofom fighs,
Foam on her lips, and fury in her eyes,
Strong writhe her limbs, her wild difhrevell'd hair
Starts from her laurel-wreath, and fwims in air.—
While *twenty* Priefts the gorgeous fhrine furround
Cinctur'd with ephods, and with garlands crown'd,

Laura. l. 40. Prunus. Lauro-cerafus. Twenty males, one female. The Pythian prieftefs is fuppofed to have been made drunk with infufion of laurel-leaves when fhe delivered her oracles. The intoxication or infpiration is finely defcribed by Virgil Æn. L. vi. The diftilled water from laurel-leaves is, perhaps, the moft fudden poifon we are acquainted with in this country. I have feen about two fpoonfuls of it deftroy a large pointer dog in lefs than ten minutes. In a fmaller dofe it is faid to produce intoxication: on this account there is reafon to believe it acts in the fame manner as opium and vinous fpirit; but that the dofe is not fo well afcertained. See note on Tremella. It is ufed in the Ratifie of the Diftillers, by which fome dram-drinkers have been fuddenly killed. One pint of water, diftilled from fourteen pounds of black cherry ftones bruifed, has the fame deleterious effect, deftroying as fuddenly as laurel-water. It is probable Apricot-kernels, Peach-leaves, Walnut-leaves, and whatever poffeffes the kernel-flavour, may have fimilar qualities.

Contending hoſts and trembling nations wait
The firm immutable beheſts of Fate;
—She ſpeaks in thunder from her golden throne
With words *unwill'd*, and wiſdom not her own.

So on his NIGHTMARE through the evening fog
Flits the ſquab Fiend o'er fen, and lake, and bog;
Seeks ſome love-wilder'd Maid with ſleep oppreſs'd,
Alights, and grinning ſits upon her breaſt.
—Such as of late amid the murky ſky
Was mark'd by FUSELI's poetic eye;
Whoſe daring tints, with SHAKESPEAR's happieſt grace,
Gave to the airy phantom form and place.—
Back o'er her pillow ſinks her bluſhing head,
Her ſnow-white limbs hang helpleſs from the bed;
While with quick ſighs, and ſuffocative breath,
Her interrupted heart-pulſe ſwims in death.
—Then ſhrieks of captur'd towns, and widows' tears,
Pale lovers ſtretch'd upon their blood-ſtain'd biers,

The headlong precipice that thwarts her flight,
The tracklefs defert, the cold ftarlefs night,
And ftern-eye'd Murderer with his knife behind,
In dread fucceffion agonize her mind.
O'er her fair limbs convulfive tremors fleet,
Start in her hands, and ftruggle in her feet;
In vain to fcream with quivering lips fhe tries,
And ftrains in palfy'd lids her tremulous eyes;
In vain fhe *wills* to run, fly, fwim, walk, creep;
The WILL prefides not in the bower of SLEEP.
—On her fair bofom fits the Demon-Ape
Erect, and balances his bloated fhape;

The Will prefides not. l. 74. Sleep confifts in the abolition of all voluntary power, both over our mufcular motions and our ideas; for we neither walk nor reafon in fleep. But at the fame time, many of our mufcular motions, and many of our ideas continue to be excited into action in confequence of internal irritations and of internal fenfations; for the heart and arteries continue to beat, and we experience variety of paffions, and even hunger and thirft in our dreams. Hence I conclude, that our nerves of fenfe are not torpid or inert during fleep; but that they are only precluded from the perception of external objects, by their external organs being rendered unfit to tranfmit to them the appulfes of external bodies, during the fufpenfion of the power of volition; thus the eyelids are clofed in fleep, and I fuppofe the tympanum of the ear is not ftretched, becaufe they are deprived of the voluntary exertions of the mufcles appropriated to thefe purpofes; and it is probable fomething fimilar happens to the external apparatus of our other organs of fenfe, which may render them unfit for their office of perception during fleep: for milk put into the mouths of fleeping babes occafions them to fwallow and fuck; and, if the eye-lid is a little opened in the day-light by the exertions of difturbed fleep, the perfon dreams of being much dazzled. See firft Interlude

Rolls in their marble orbs his Gorgon-eyes,
And drinks with leathern ears her tender cries.

Arm'd with her ivory beak, and talon-hands,
Deſcending Fica dives into the ſands;
Chamber'd in earth with cold oblivion lies;
Nor heeds, *ye Suitor-train*, your amorous ſighs;
Erewhile with renovated beauty blooms,
Mounts into air, and moves her leafy plumes.
—Where Hamps and Manifold, their cliffs among,
Each in his flinty channel winds along;
With lucid lines the duſky moor divides,
Hurrying to intermix their ſiſter tides.

When there ariſes in ſleep a painful deſire to exert the voluntary motions, it is called the Nightmare or Incubus. When the ſleep becomes ſo imperfect that ſome muſcular motions obey this exertion of deſire, people have walked about, and even performed ſome domeſtic offices in ſleep; one of theſe ſleep-walkers I have frequently ſeen: once ſhe ſmelt of a tube-roſe, and ſung, and drank a diſh of tea in this ſtate; her awaking was always attended with prodigious ſurprize, and even fear; this diſeaſe had daily periods, and ſeemed to be of the epileptic kind.

Ficus indica. l. 80. Indian Fig-tree. Of the claſs Polygamy. This large tree riſes with oppoſite branches on all ſides, with long egged leaves; each branch emits a ſlender flexile depending appendage from its ſummit like a cord, which roots into the earth and riſes again. Sloan. Hiſt. of Jamaica. Lin. Spec. Plant. See Capri-ficus.

Where ſtill their ſilver-boſom'd Nymphs abhor,
The blood-ſmear'd manſion of gigantic THOR,—
—Erſt, fires volcanic in the marble womb
Of cloud-wrapp'd WETTON raiſed the maſſy dome;
Rocks rear'd on rocks in huge disjointed piles
Form the tall turrets, and the lengthen'd ailes;
Broad ponderous piers ſuſtain the roof, and wide
Branch the vaſt rain-bow ribs from ſide to ſide.

Gigantic Thor. l. 90. Near the village of Wetton, a mile or two above Dove-Dale, near *Aſhburn in Derbyſhire*, there is a ſpacious cavern about the middle of the aſcent of the mountain, which ſtill retains the name of Thor's houſe; below it is an extenſive and romantic common, where the rivers Hamps and Manifold ſink into the earth, and riſe again in Ilam gardens, the ſeat of John Port, Eſq. about three miles below. Where theſe rivers riſe again there are impreſſions reſembling Fiſh, which appear to be of Jaſper bedded in Limeſtone. Calcareous Spars, Shells converted into a kind of Agate, coral-lines in Marble, ores of Lead, Copper, and Zinc, and many ſtrata of Flint, or Chert, and of Toadſtone, or Lava, abound in this part of the country. The Druids are ſaid to have offered human ſacrifices incloſed in wicker idols to Thor. Thurſday had its name from this Deity.

The broken appearance of the ſurface of many parts of this country; with the Swallows, as they are called, or baſons on ſome of the mountains, like volcanic Craters, where the rain-water ſinks into the earth; and the numerous large ſtones, which ſeem to have been thrown over the land by volcanic exploſions; as well as the great maſſes of Toadſtone or Lava; evince the exiſtence of violent earthquakes at ſome early period of the world. At this time the channels of theſe ſubterraneous rivers ſeem to have been formed, when a long tract of rocks were raiſed by the ſea flowing in upon the central fires, and thus producing an irreſiſtible exploſion of ſteam; and when theſe rocks again ſubſided, their parts did not exactly correſpond, but left a long cavity arched over in this operation of nature. The cavities at Caſtleton and Buxton in Derbyſhire ſeem to have had a ſimilar origin, as well as this cavern termed Thor's houſe. See Mr. Whitehurſt's and Dr. Hutton's Theories of the Earth.

While from above deſcends in milky ſtreams
One ſcanty pencil of illuſive beams,
Suſpended crags and gaping gulphs illumes,
And gilds the horrors of the deepen'd glooms.
—Here oft the Naiads, as they chanced to play
Near the dread Fane on THOR's returning day,
Saw from red altars ſtreams of guiltleſs blood
Stain their green reed-beds, and pollute their flood;
Heard dying babes in wicker priſons wail,
And ſhrieks of matrons thrill the affrighted Gale;
While from dark caves infernal Echoes mock,
And Fiends triumphant ſhout from every rock!
—*So* ſtill the Nymphs emerging lift in air
Their ſnow-white ſhoulders and their azure hair;
Sail with ſweet grace the dimpling ſtreams along,
Liſtening the Shepherd's or the Miner's ſong;
But, when afar they view the giant-cave,
On timorous fins they circle on the wave,
With ſtreaming eyes and throbbing hearts recoil,
Plunge their fair forms, and dive beneath the ſoil.—

Cloſed round their heads reluctant eddies ſink,
And wider rings ſucceſſive daſh the brink.—
Three thouſand ſteps in ſparry clefts they ſtray,
Or ſeek through ſullen mines their gloomy way;
On beds of Lava ſleep in coral cells,
Or ſigh o'er jaſper fiſh, and agate ſhells.
Till, where famed ILAM leads his boiling floods
Through flowery meadows and impending woods,
Pleaſed with light ſpring they leave the dreary night,
And 'mid circumfluent ſurges riſe to light;
Shake their bright locks, the widening vale purſue,
Their ſea-green mantles fringed with pearly dew;
In playful groups by towering THORP they move,
Bound o'er the foaming wears, and ruſh into the Dove.

With fierce diſtracted eye IMPATIENS ſtands,
Swells her pale cheeks, and brandiſhes her hands,

Impatiens. l. 131. Touch me not. The ſeed veſſel conſiſts of one cell with five diviſions; each of theſe, when the ſeed is ripe, on being touched, ſuddenly folds itſelf into a ſpiral form, leaps from the ſtalk, and diſperſes the ſeeds to a great diſtance by its elaſticity. The capſule of the geranium and the beard of wild oats are twiſted for a

With rage and hate the aſtoniſh'd groves alarms,
And hurls her infants from her frantic arms.
—So when Medæa left her native ſoil,
Unaw'd by danger, unſubdued by toil;
Her weeping ſire and beckoning friends withſtood,
And launch'd enamour'd on the boiling flood;
One ruddy boy her gentle lips careſs'd,
And one fair girl was pillowed on her breaſt;
While high in air the golden treaſure burns,
And Love and Glory guide the prow by turns.

ſimilar purpoſe, and diſlodge their ſeeds on wet days, when the ground is beſt fitted to receive them. Hence one of theſe, with its adhering capſule or beard fixed on a ſtand, ſerves the purpoſe of an hygrometer, twiſting itſelf more or leſs according to the moiſture of the air.

The awn of barley is furniſhed with ſtiff points, which, like the teeth of a ſaw, are all turned towards the point of it; as this long awn lies upon the ground, it extends itſelf in the moiſt air of night, and puſhes forwards the barley corn, which it adheres to; in the day it ſhortens as it dries; and as theſe points prevent it from receding, it draws up its pointed end; and thus, creeping like a worm, will travel many feet from the parent ſtem. That very ingenious Mechanic Philoſopher, Mr. Edgworth, once made on this principle a wooden automaton; its back conſiſted of ſoft Fir-wood, about an inch ſquare, and four feet long, made of pieces cut the croſs-way in reſpect to the fibres of the wood, and glued together: it had two feet before, and two behind, which ſupported the back horizontally; but were placed with their extremities, which were armed with ſharp points of iron, bending backwards. Hence, in moiſt weather the back lengthened, and the two foremoſt feet were puſhed forwards; in dry weather the hinder feet were drawn after, as the obliquity of the points of the feet prevented it from receding. And thus, in a month or two, it walked acroſs the room which it inhabited. Might not this machine be applied as an Hygrometer to ſome meteorological purpoſe?

But, when Theſſalia's inauſpicious plain
Received the matron-heroine from the main;
While horns of triumph ſound, and altars burn,
And ſhouting nations hail their Chief's return;
Aghaſt, She ſaw new-deck'd the nuptial bed,
And proud CREUSA to the temple led;
Saw her in JASON's mercenary arms
Deride her virtues, and inſult her charms;
Saw her dear babes from fame and empire torn,
In foreign realms deſerted and forlorn;
Her love rejected, and her vengeance braved,
By Him her beauties won, her virtues ſaved.—
With ſtern regard ſhe eyed the traitor-king,
And felt, Ingratitude! thy keeneſt ſting;
"Nor Heaven," ſhe cried, "nor Earth, nor Hell can hold
"A Heart abandon'd to the thirſt of Gold!"
Stamp'd with wild foot, and ſhook her horrent brow,
And call'd the furies from their dens below.
—Slow out of earth, before the feſtive crowds,
On wheels of fire, amid a night of clouds,

Drawn by fierce fiends arofe a magic car,
Received the Queen, and hovering flam'd in air.—
As with raifed hands the fuppliant traitors kneel,
And fear the vengeance they deferve to feel,
Thrice with parch'd lips her guiltlefs babes fhe prefs'd,
And thrice fhe clafp'd them to her tortur'd breaft;
Awhile with white uplifted eyes fhe ftood,
Then plung'd her trembling poniards in their blood.
"Go, kifs your fire! go, fhare the bridal mirth!"
She cry'd, and hurl'd their quivering limbs on earth.
Rebellowing thunders rock the marble towers,
And red-tongued lightnings fhoot their arrowy fhowers;
Earth yawns!—the crafhing ruin finks!—o'er all
Death with black hands extends his mighty Pall;
Their mingling gore the Fiends of Vengeance quaff,
And Hell receives them with convulfive laugh.

Round the vex'd ifles where fierce tornadoes roar,
Or tropic breezes footh the fultry fhore;

What time the eve her gauze pellucid ſpreads
O'er the dim flowers, and veils the miſty meads;
Slow o'er the twilight ſands or leafy walks,
With gloomy dignity DICTAMNA ſtalks;
In ſulphurous eddies round the weird dame
Plays the light gas, or kindles into flame.

Dictamnus. l. 184. Fraxinella. In the ſtill evenings of dry ſeaſons this plant emits an inflammable air or gas, and flaſhes on the approach of a candle. There are inſtances of human creatures who have taken fire ſpontaneouſly, and been totally conſumed. Phil. Tranſ.

The odours of many flowers, ſo delightful to our ſenſe of ſmell, as well as the diſagreeable ſcents of others, are owing to the exhalation of their eſſential oils. Theſe eſſential oils have greater or leſs volatility, and are all inflammable; many of them are poiſons to us, as theſe of Laurel and Tabacco; other poſſeſs a narcotic quality, as is evinced by the oil of cloves inſtantly relieving ſlight tooth-achs; from oil of cinnamon relieving the hiccup; and balſam of peru relieving the pain of ſome ulcers. They are all deleterious to certain inſects, and hence their uſe in the vegetable economy, being produced in flowers or leaves to protect them from the depredations of their voracious enemies. One of the eſſential oils, that of turpentine, is recommended, by M. de Thoſſe, for the purpoſe of deſtroying inſects which infect both vegetables and animals. Having obſerved that the trees were attacked by multitudes of ſmall inſects of different colours (pucins ou puccrons) which injured their young branches, he deſtroyed them all entirely in the following manner: he put into a bowl a few handfuls of earth, on which he poured a ſmall quantity of oil of turpentine; he then beat the whole together with a ſpatula, pouring on it water till it became of the conſiſtence of ſoup; with this mixture he moiſtened the ends of the branches, and both the inſects and their eggs were deſtroyed, and other inſects kept aloof by the ſcent of the turpentine. He adds, that he deſtroyed the fleas of his puppies by once bathing them in warm water impregnated with oil of turpentine. Mem. d'Agriculture, An. 1787, Tremeſt. Printemp. p. 109. I ſprinkled ſome oil of turpentine, by means of a bruſh, on ſome branches of a nectarine tree, which was covered with the aphis; but it killed both the inſect and the branches: a ſolution of arſenic much diluted did the ſame. The ſhops of medicine are ſupplied with reſins, balſams, and eſſential oils; and the tar and pitch, for mechanical purpoſes, are produced from theſe vegetable ſecretions.

If reſts the traveller his weary head,
Grim MANCINELLA haunts the moſſy bed,
Brews her black hebenon, and, ſtealing near,
Pours the curſt venom in his tortured ear.—
Wide o'er the mad'ning throng URTICA flings
Her barbed ſhafts, and darts her poiſon'd ſtings.

Mancinella. l. 188. Hyppomane. With the milky juice of this tree the Indians poiſon their arrows; the dew-drops which fall from it are ſo cauſtic as to bliſter the ſkin, and produce dangerous ulcers; whence many have found their death by ſleeping under its ſhade. Variety of noxious plants abound in all countries, in our own the deadly night-ſhade, henbane, hounds-tongue, and many others, are ſeen in almoſt every high road untouched by animals. Some have aſked, what is the uſe of ſuch abundance of poiſons? The nauſeous or pungent juices of ſome vegetables, like the thorns of others, are given them for their defence from the depredations of animals; hence the thorny plants are in general wholeſome and agreeable food to granivorous animals. See note on Ilex. The flowers or petals of plants are perhaps in general more acrid than their leaves; hence they are much ſeldomer eaten by inſects. This ſeems to have been the uſe of the eſſential oil in the vegetable economy, as obſerved above in the notes on Dictamnus and Ilex. The fragrance of plants is thus a part of their defence. Theſe pungent or nauſeous juices of vegetables have ſupplied the ſcience of medicine with its principal materials, ſuch as purge, vomit, intoxicate, &c.

Urtica. l. 191. Nettle. The ſting has a bag at its baſe, and a perforation near its point, exactly like the ſtings of waſps and the teeth of adders; Hook, Microgr. p. 142. Is the fluid contained in this bag, and preſſed through the perforation into the wound, made by the point, a cauſtic eſſential oil, or a concentrated vegetable acid? The vegetable poiſons, like the animal ones, produce more ſudden and dangerous effects, when inſtilled into a wound, than when taken into the ſtomach; whence the families of Marſi and Pſilli, in antient Rome, ſucked the poiſon without injury out of wounds made by vipers, and were ſuppoſed to be indued with ſupernatural powers for this purpoſe. By the experiments related by Beccaria, it appears that four or five times the quantity, taken by the mouth, had about equal effects with that infuſed into a wound. The male flowers of the nettle are ſeparate from the female, and the anthers are ſeen in fair weather to burſt with force, and to diſcharge a duſt, which hovers about the plant like a cloud.

And fell LOBELIA's ſuffocating breath
Loads the dank pinion of the gale with death.
—With fear and hate they blaſt the affrighted groves,
Yet own with tender care their *kindred Loves!*—

So, where PALMIRA 'mid her waſted plains,
Her ſhatter'd aqueducts, and proſtrate fanes,
(As the bright orb of breezy midnight pours
Long threads of ſilver through her gaping towers,
O'er mouldering tombs, and tottering columns gleams,
And froſts her deſerts with diffuſive beams),

Lobelia. l. 193. Longiflora. Grows in the Weſt Indies, and ſpreads ſuch deleterious exhalations around it, that an oppreſſion of the breaſt is felt on approaching it at many feet diſtance when placed in the corner of a room or hot-houſe. Ingenhouz, Exper. on Air, p. 146. Jacquini hort. botanic. Vindeb. The exhalations from ripe fruit or withering leaves are proved much to injure the air in which they are confined; and, it is probable, all thoſe vegetables which emit a ſtrong ſcent may do this in a greater or leſs degree, from the Roſe to the Lobelia; whence the unwholeſomeneſs in living perpetually in ſuch an atmoſphere of perfume as ſome people wear about their hair, or carry in their handkerchiefs. Either Boerhave or Dr. Mead have affirmed they were acquainted with a poiſonous fluid whoſe vapour would preſently deſtroy the perſon who ſat near it. And it is well known, that the gas from fermenting liquors, or obtained from lime-ſtone, will deſtroy animals immerſed in it, as well as the vapour of the Grotto del Cani near Naples.

So, where Palmira. l. 197. Among the ruins of Palmira, which are diſperſed not only over the plains but even in the deſerts, there is one ſingle colonade above 2600 yards long, the baſes of the Corinthian columns of which exceed the height of a man: and yet this row is only a ſmall part of the remains of that one edifice! Volney's Travels.

Sad o'er the mighty wreck in ſilence bends,
Lifts her wet eyes, her tremulous hands extends.—
If from lone cliffs a burſting rill expands
Its tranſient courſe, and ſinks into the ſands;
O'er the moiſt rock the fell Hyæna prowls,
The Leopard hiſſes, and the Panther growls;
On quivering wing the famiſh'd Vulture ſcreams,
Dips his dry beak, and ſweeps the guſhing ſtreams;
With foaming jaws, beneath, and ſanguine tongue,
Laps the lean Wolf, and pants, and runs along;
Stern ſtalks the Lion, on the ruſtling brinks
Hears the dread Snake, and trembles as he drinks;
Quick darts the ſcaly Monſter o'er the plain,
Fold, after fold, his undulating train;
And, bending o'er the lake his creſted brow,
Starts at the Crocodile, that gapes below.

Where ſeas of glaſs with gay reflections ſmile
Round the green coaſts of Java's palmy iſle;

A ſpacious plain extends its upland ſcene,
Rocks riſe on rocks, and fountains guſh between;
Soft zephyrs blow, eternal ſummers reign,
And ſhowers prolific bleſs the ſoil,—in vain!
—No ſpicy nutmeg ſcents the vernal gales,
Nor towering plaintain ſhades the mid-day vales;
No graſſy mantle hides the ſable hills,
No flowery chaplet crowns the trickling rills;
Nor tufted moſs, nor leathery lichen creeps
In ruſſet tapeſtry o'er the crumbling ſteeps.
—No ſtep retreating, on the ſand impreſs'd,
Invites the viſit of a ſecond gueſt;
No refluent fin the unpeopled ſtream divides,
No revolant pinion cleaves the airy tides;
Nor handed moles, nor beaked worms return,
That mining paſs the irremeable bourn.——
Fierce in dread ſilence on the blaſted heath
Fell UPAS ſits, the HYDRA-TREE of death.

Upas. l. 238. There is a poiſon-tree in the iſland of Java, which is ſaid by its effluvia to have depopulated the country for 12 or 14 miles round the place of its growth.

Lo! from one root, the envenom'd ſoil below,
A thouſand vegetative ſerpents grow;
In ſhining rays the ſcaly monſter ſpreads
O'er ten ſquare leagues his far-diverging heads;
Or in one trunk entwiſts his tangled form,
Looks o'er the clouds, and hiſſes in the ſtorm.
Steep'd in fell poiſon, as his ſharp teeth part,
A thouſand tongues in quick vibration dart;
Snatch the proud Eagle towering o'er the heath,
Or pounce the Lion, as he ſtalks beneath;
Or ſtrew, as marſhall'd hoſts contend in vain,
With human ſkeletons the whiten'd plain.

It is called, in the Malayan language, Bohon-Upas; with the juice of it the moſt poiſonous arrows are prepared; and, to gain this, the condemned criminals are ſent to the tree with proper direction both to get the juice and to ſecure themſelves from the malignant exhalations of the tree; and are pardoned if they bring back a certain quantity of the poiſon. But by the regiſters there kept, not one in four are ſaid to return. Not only animals of all kinds, both quadrupeds, fiſh, and birds, but all kinds of vegetables alſo are deſtroyed by the effluvia of the noxious tree; ſo that, in a diſtrict of 12 or 14 miles round it, the face of the earth is quite barren and rocky intermixed only with the ſkeletons of men and animals, affording a ſcene of melancholy beyond what poets have deſcribed or painters delineated. Two younger trees of its own ſpecies are ſaid to grow near it. See London Magazine for 1784 or 1783. Tranſlated from a deſcription of the poiſon-tree of the iſland of Java, written in Dutch by N. P. Foereh. For a further account of it, ſee a note at the end of the work.

—Chain'd at his root two ſcion-demons dwell,
Breathe the faint hiſs, or try the ſhriller yell;
Riſe, fluttering in the air on callow wings,
And aim at inſect-prey their little ſtings.
So Time's ſtrong arms with ſweeping ſcythe eraſe
Art's cumberous works, and empires, from their baſe:
While each young Hour its ſickle fine employs,
And crops the ſweet buds of domeſtic joys!

With bluſhes bright as morn fair ORCHIS charms,
And lulls her infant in her fondling arms;

Orchis. l. 259. The Orchis morio in the circumſtance of the parent-root ſhrivelling up and dying, as the young one increaſes, is not only analogous to other tuberous or knobby roots, but alſo to ſome bulbous roots, as the tulip. The manner of the production of herbaceous plants from their various perennial roots, ſeems to want further inveſtigation, as their analogy is not yet clearly eſtabliſhed. The caudex, or true root, in the orchis lies above the knob; and from this part the fibrous roots and the new knob are produced. In the tulip the caudex lies below the bulb; from whence proceed the fibrous roots and the new bulbs; the root, after it has flowered, dies like the orchis-root; for the ſtem of the laſt year's tulip lies on the outſide, and not in the center of the bulb; which I am informed does not happen in the three or four firſt years when raiſed from ſeed, when it only produces a ſtem, and ſlender leaves without flowering. In the tulip-root, diſſected in the early ſpring, juſt before it begins to ſhoot, a perfect flower is ſeen in its center; and between the firſt and ſecond coat the large next year's bulb is, I believe, produced; between the ſecond and third coat, and between this and the fourth coat, and perhaps further, other leſs and leſs bulbs are viſible, all adjoining to the caudex at the bottom of the mother bulb; and which, I am told, require as many years before they will flower, as the number of the coats with which they are covered. This

Soft plays *Affection* round her boſom's throne,
And guards his life, forgetful of her own.
So wings the wounded Deer her headlong flight,
Pierced by ſome ambuſh'd archer of the night,
Shoots to the woodlands with her bounding fawn,
And drops of blood bedew the conſcious lawn;
There hid in ſhades ſhe ſhuns the cheerful day,
Hangs o'er her young, and weeps her life away.

annual reproduction of the tulip-root induces ſome floriſts to believe that tulip-roots never die naturally, as they loſe ſo few of them; whereas the hyacinth-roots, I am informed, will not laſt above five or ſeven years after they have flowered.

The hyacinth-root differs from the tulip-root, as the ſtem of the laſt year's flower is always found in the center of the root, and the new off-ſets ariſe from the caudex below the bulb, but not beneath any of the concentric coats of the root, except the external one: hence Mr. Eaton, an ingenious floriſt of Derby, to whom I am indebted for moſt of the obſervations in this note, concludes, that the hyacinth-root does not periſh annually after it has flowered like the tulip. Mr. Eaton gave me a tulip-root which had been ſet too deep in the earth, and the caudex had elongated itſelf near an inch, and the new bulb was formed above the old one, and detached from it, inſtead of adhering to its ſide. See addit. Notes to Vol. I. No. XIV.

The caudex of the ranunculus, cultivated by the floriſts, lies above the claw-like root; in this the old root or claws die annually, like the tulip and orchis, and the new claws, which are ſeen above the old ones, draw down the caudex lower into the earth. The ſame is ſaid to happen to Scabioſa, or Devil's bit, and ſome other plants, as valerian and greater plantain; the new fibrous roots riſing round the caudex above the old ones, the inferior end of the root becomes ſtumped, as if cut off, after the old fibres are decayed, and the caudex is drawn down into the earth by theſe new roots. See Arum and Tulipa.

So ſtood Eliza on the wood-crown'd height,
O'er Minden's plain, ſpectatreſs of the fight,
Sought with bold eye amid the bloody ſtrife
Her dearer ſelf, the partner of her life;
From hill to hill the ruſhing hoſt purſued,
And view'd his banner, or believed ſhe view'd.
Pleaſed with the diſtant roar, with quicker tread
Faſt by his hand one liſping boy ſhe led;
And one fair girl amid the loud alarm
Slept on her kerchief, cradled by her arm;
While round her brows bright beams of Honour dart,
And Love's warm eddies circle round her heart.
—Near and more near the intrepid Beauty preſs'd,
Saw through the driving ſmoke his dancing creſt;
Saw on his helm, her virgin-hands inwove,
Bright ſtars of gold, and myſtic knots of love;
Heard the exulting ſhout, "they run! they run!"
"Great God!" ſhe cried, "He's ſafe! the battle's won!"
—A ball now hiſſes through the airy tides,
(Some Fury wing'd it, and ſome Demon guides!)

Parts the fine locks, her graceful head that deck,
Wounds her fair ear, and ſinks into her neck;
The red ſtream, iſſuing from her azure veins,
Dyes her white veil, her ivory boſom ſtains.—
—“ Ah me;” ſhe cried, and ſinking on the ground,
Kiſs'd her dear babes, regardleſs of the wound;
“ Oh, ceaſe not yet to beat, thou Vital Urn!
“ Wait, guſhing Life, oh, wait my Love's return!
“ Hoarſe barks the wolf, the vulture ſcreams from far!—
“ The angel, Pity, ſhuns the walks of war!—
“ Oh, ſpare, ye War-hounds, ſpare their tender age!—
“ On me, on me,” ſhe cried, “ exhauſt your rage!”—
Then with weak arms her weeping babes careſs'd,
And, ſighing, hid them in her blood-ſtain'd veſt.

From tent to tent the impatient warrior flies,
Fear in his heart, and frenzy in his eyes;
Eliza's name along the camp he calls,
Eliza echoes through the canvas walls;

Quick through the murmuring gloom his footfteps tread,
O'er groaning heaps, the dying and the dead,
Vault o'er the plain, and in the tangled wood,
Lo! dead Eliza weltering in her blood!—
—Soon hears his liftening fon the welcome founds,
With open arms and fparkling eyes he bounds:—
"Speak low," he cries, and gives his little hand,
"Eliza fleeps upon the dew-cold fand;
"Poor weeping babe with bloody fingers prefs'd,
"And tried with pouting lips her milklefs breaft;
"Alas! we both with cold and hunger quake—
"Why do you weep?—Mama will foon awake."
—"She'll wake no more!" the hopelefs mourner cried,
Upturn'd his eyes, and clafp'd his hands, and figh'd:
Stretch'd on the ground awhile entranc'd he lay,
And prefs'd warm kiffes on the lifelefs clay;
And then upfprung with wild convulfive ftart,
And all the Father kindled in his heart;
"Oh, Heavens!" he cried, "my firft rafh vow forgive;
"Thefe bind to earth, for thefe I pray to live!"—

Round his chill babes he wrapp'd his crimſon veſt,
And claſp'd them ſobbing to his aching breaſt.

Two Harlot-Nymphs, the fair CUSCUTAS, pleaſe
With labour'd negligence, and ſtudied eaſe;
In the meek garb of modeſt worth diſguiſed,
The eye averted, and the ſmile chaſtiſed,
With ſly approach they ſpread their dangerous charms,
And round their victim wind their wiry arms.

Cuſcuta. l. 329. Dodder. Four males, two females. This paraſite plant (the ſeed ſplitting without cotyledons), protrudes a ſpiral body, and not endeavouring to root itſelf in the earth, aſcends the vegetables in its vicinity, ſpirally W. S. E. or contrary to the movement of the ſun; and abſorbs its nouriſhment by veſſels apparently inſerted into its ſupporters. It bears no leaves, except here and there a ſcale, very ſmall, membraneous, and cloſe under the branch. Lin. Spec. Plant. edit. a Reichard. Vol. I. p. 352. The Rev. T. Martyn, in his elegant letters on botany, adds, that, not content with ſuupport, where it lays hold, there it draws its nouriſhment; and, at length, in gratitude for all this, ſtrangles its entertainer. Letter xv. A conteſt for air and light obtains throughout the whole vegetable world; ſhrubs riſe above herbs, and, by precluding the air and light from them, injure or deſtroy them; trees ſuffocate or incommode ſhrubs; the paraſite climbing plants, as Ivy, Clematis, incommode the taller trees; and other paraſites, which exiſt without having roots on the ground, as Miſletoe, Tillandſia, Epidendrum, and the moſſes and funguſſes, incommode them all.

Some of the plants with voluble ſtems aſcend other plants ſpirally eaſt-ſouth-weſt, as Humulus, Hop, Lonicera, Honey-ſuckle, Tamus, black Bryony, Helxine. Others turn their ſpiral ſtems weſt-ſouth-eaſt, as Convolvulus, Corn-bind, Phoſealus, Kidney-bean, Baſella, Cynanche, Euphorbia, Eupatorium. The proximate or final cauſes of this difference have not been inveſtigated. Other plants are furniſhed with tendrils for the purpoſe of climbing: if the tendril meets with nothing to lay hold of in its firſt revolu-

So by Scamander when Laocoon ſtood,
Where Troy's proud turrets glitter'd in the flood,
Raiſed high his arm, and with prophetic call
To ſhrinking realms announced her fated fall;
Whirl'd his fierce ſpear with more than mortal force,
And pierced the thick ribs of the echoing horſe;
Two Serpent-forms incumbent on the main,
Laſhing the white waves with redundant train,
Arch'd their blue necks, and ſhook their towering creſts,
And plough'd their foamy way with ſpeckled breaſts;
Then, darting fierce amid the affrighted throngs,
Roll'd their red eyes, and ſhot their forked tongues.—
—Two daring youths to guard the hoary ſire,
Thwart their dread progreſs, and provoke their ire.

tion, it makes another revolution; and ſo on till it wraps itſelf quite up like a cork-ſcrew; hence, to a careleſs obſerver, it appears to move gradually backwards and forwards, being ſeen ſometimes pointing eaſtward and ſometimes weſtward. One of the Indian graſſes, Panicum arboreſcens, whoſe ſtem is no thicker than a gooſe-quill, riſes as high as the talleſt trees in this conteſt for light and air. Spec. Plant a Reichard, Vol. I. p. 161. The tops of many climbing plants are tender from their quick growth; and, when deprived of their acrimony by boiling, are an agreeable article of food. The Hop-tops are in common uſe. I have eaten the tops of white Bryony, Bryonia alba, and found them nearly as grateful as Aſparagus, and think this plant might be profitably cultivated as an early garden-vegetable. The Tamus (called black Bryony), was leſs agreeable to the taſte when boiled. See Galanthus.

Round ſire and ſons the ſcaly monſters roll'd,
Ring above ring, in many a tangled fold,
Cloſe and more cloſe their writhing limbs ſurround,
And fix with foamy teeth the envenom'd wound.
—With brow upturn'd to heaven the holy Sage
In ſilent agony ſuſtains their rage;
While each fond Youth, in vain, with piercing cries
Bends on the tortured Sire his dying eyes.

" Drink deep, ſweet youths," ſeductive VITIS cries,
The maudlin tear-trop glittering in her eyes;
Green leaves and purple cluſters crown her head,
And the tall Thyrſus ſtays her tottering tread.

Vitis. l. 357. Vine. Five males, one female. The juice of the ripe grape is a nutritive and agreeable food, conſiſting chiefly of ſugar and mucilage. The chemical proceſs of fermentation converts this ſugar into ſpirit; converts food into poiſon! And it has thus become the curſe of the Chriſtian world, producing more than half of our chronical diſeaſes; which Mahomet obſerved, and forbade the uſe of it to his diſciples. The Arabians invented diſtillation; and thus by obtaining the ſpirit of fermented liquors in a leſs diluted ſtate, added to its deſtructive quality. A Theory of the Diabætes and Dropſy, produced by drinking fermented or ſpirituous liquors, is explained in a Treatiſe on the inverted motions of the lymphatic ſyſtem, publiſhed by Dr. Darwin. Cadel.

—*Five* hapleſs ſwains with ſoft aſſuaſive ſmiles
The harlot meſhes in her deathful toils;
" Drink deep," ſhe carols, as ſhe waves in air
The mantling goblet, " and forget your care."—
O'er the dread feaſt malignant Chemia ſcowls,
And mingles poiſon in the nectar'd bowls;
Fell Gout peeps grinning through the flimſy ſcene,
And bloated Dropſy pants behind unſeen;
Wrapp'd in his robe white Lepra hides his ſtains,
And ſilent Frenzy writhing bites his chains.

So when PROMETHEUS brav'd the Thunderer's ire,
Stole from his blazing throne ethereal fire,

Prometheus. l. 371. The ancient ſtory of Prometheus, who concealed in his boſom the fire he had ſtolen, and afterwards had a vulture perpetually gnawing his liver, affords ſo apt an allegory for the effects of drinking ſpirituous liquors, that one ſhould be induced to think the art of diſtillation, as well as ſome other chemical proceſſes (ſuch as calcining gold), had been known in times of great antiquity, and loſt again. The ſwallowing drams cannot be better repreſented in hieroglyphic language than by taking fire into one's boſom; and certain it is, that the general effect of drinking fermented or ſpirituous liquors is an inflamed ſchirrous, or paralytic liver, with its various critical or conſequential diſeaſes, as leprous eruptions on the face, gout, dropſy, epilepſy, inſanity. It is remarkable, that all the diſeaſes from drinking ſpirituous or fermented liquors are liable to become hereditary, even to the third generation, gradually increaſing, if the cauſe be continued, till the family becomes extinct.

And, lantern'd in his breaſt, from realms of day
Bore the bright treaſure to his Man of clay;—
High on cold Caucaſus by VULCAN bound,
The lean impatient Vulture fluttering round,
His writhing limbs in vain he twiſts and ſtrains
To break or looſe the adamantine chains.
The gluttonous bird, exulting in his pangs,
Tears his ſwoln liver with remorſeleſs fangs.

The gentle CYCLAMEN with dewy eye
Breathes o'er her lifeleſs babe the parting ſigh;
And, bending low to earth, with pious hands
Inhumes her dear Departed in the ſands.

Cyclamen. l. 181. Shew-bread, or Show-bread. When the ſeeds are ripe, the ſtalk of the flower gradually twiſts itſelf ſpirally downwards, till it touches the ground, and forcibly penetrating the earth lodges its ſeeds, which are thought to receive nouriſhment from the parent root, as they are ſaid not to be made to grow in any other ſituation.

The Trifolium ſubterraneum, ſubterraneous trefoil, is another plant which buries its ſeeds, the globular head of the ſeed penetrating the earth; which, however, in this plant may be only an attempt to conceal its ſeeds from the ravages of birds; for there is another trefoil, the Trifolium Globoſum, or globular woolly-headed trefoil, which has a curious manner of concealing its ſeeds; the lower florets only have corols, and are fertile; the upper ones wither into a kind of wool, and, forming a head, completely conceal the fertile calyxes. Lin. Spec. Plant. a Reichard.

" Sweet Nurſling! withering in thy tender hour,
" Oh, ſleep," ſhe cries, " and riſe a fairer flower!"
—So when the Plague o'er London's gaſping crowds
Shook her dank wing, and ſteer'd her murky clouds;
When o'er the friendleſs bier no rites were read,
No dirge ſlow-chaunted, and no pall out-ſpread;
While Death and Night piled up the naked throng,
And ſilence drove their ebon cars along;
Six lovely daughters, and their father, ſwept
To the throng'd grave CLEONE ſaw, and wept;
Her tender mind, with meek Religion fraught,
Drank all-reſign'd Afflictions bitter draught;
Alive and liſtening to the whiſper'd groan
Of others' woes, unconſcious of her own!—
One ſmiling boy, her laſt ſweet hope, ſhe warms
Huſh'd on her boſom, circled in her arms.—
Daughter of woe! ere morn, in vain careſs'd,
Clung the cold babe upon thy milkleſs breaſt,
With feeble cries thy laſt ſad aid required,
Stretch'd its ſtiff limbs, and on thy lap expired!—

—Long with wide eye-lids on her child ſhe gazed,
And long to Heaven their tearleſs orbs ſhe raiſed;
Then with quick foot and throbbing heart ſhe found
Where Chartreuſe open'd deep his holy ground;
Bore her laſt treaſure through the midnight gloom,
And kneeling dropp'd it in the mighty tomb;
"I follow next!" the frantic mourner ſaid,
And living plunged amid the feſtering dead.

Where vaſt Ontario rolls his brineleſs tides,
And feeds the trackleſs foreſts on his ſides,

Where Chartreuſe. l. 408. During the plague in London, 1665, one pit to receive the dead was dug in the Charter-houſe, 40 feet long, 16 feet wide, and about 20 feet deep; and in two weeks received 1114 bodies. During this dreadful calamity there were inſtances of mothers carrying their own children to thoſe public graves, and of people delirious, or in deſpair from the loſs of their friends, who threw themſelves alive into theſe pits. Journal of the plague-year in 1665, printed for E. Nutt, Royal Exchange.

Rolls his brineleſs tide. l. 413. Some philoſophers have believed that the continent of America was not raiſed out of the great ocean at ſo early a period of time as the other continents. One reaſon for this opinion was, becauſe the great lakes, perhaps nearly as large as the Mediterranean Sea, conſiſt of freſh water. And as the ſea-ſalt ſeems to have its origin from the deſtruction of vegetable and animal bodies, waſhed down by rains, and carried by rivers into lakes or ſeas; it would ſeem that this ſource of ſea-ſalt had not ſo long exiſted in that country. There is, however, a more ſatisfactory way of

Fair Cassia trembling hears the howling woods, 415
And trufts her tawny children to the floods.—

explaining this circumftance; which is, that the American lakes lie above the level of the ocean, and are hence perpetually defalited by the rivers which run through them; which is not the cafe with the Mediterranean, into which a current from the main ocean perpetually paffes.

Caffia. l. 415. Ten males, one female. The feeds are black, the ftamens gold-colour. This is one of the American fruits, which are annually thrown on the coafts of Norway; and are frequently in fo recent a ftate as to vegetate, when properly taken care of, the fruit of the anacardium, cafhew-nut; of cucurbita lagenaria, bottle-gourd; of the mimofa fcandens, cocoons; of the pifcidia erythrina, logwood-tree; and cocoa-nuts are enumerated by Dr. Tonning, (Amæn. Acad. 149.) amongft thefe emigrant feeds. The fact is truly wonderful, and cannot be accounted for but by the exiftence of under currents in the depths of the ocean; or from vortexes of water paffing from one country to another through caverns of the earth.

Sir Hans Sloane has given an account of four kinds of feeds which are frequently thrown by the fea upon the coafts of the iflands of the northern parts of Scotland. Phil. Tranf. abridged, Vol. III. p. 540, which feeds are natives of the Weft Indies, and feem to be brought thither by the gulf-ftream defcribed below. One of thefe is called, by Sir H. Sloane, Phafeolus maximus perennis, which is often thrown alfo on the coafts of Kerry in Ireland; another is called in Jamaica Horfe-eye-bean; and a third is called Niker in Jamaica. He adds, that the Lenticula marina, or Sargoffo, grows on the rocks about Jamaica, is carried by the winds and current towards the coafts of Florida, and thence into the North-American ocean, where it lies very thick on the furface of the fea.

Thus a rapid current paffes from the gulph of Florida to the N. E. along the coaft of North America, known to feamen by the name of the Gulf-stream. A chart of this was publifhed by Dr. Franklin in 1768, from the information principally of Capt. Folger. This was confirmed by the ingenious experiments of Dr. Blagden, publifhed in 1781, who found that the water of the gulf-ftream was from fix to eleven degrees warmer than the water of the fea through which it ran; which muft have been occafioned by its being brought from a hotter climate. He afcribes the origin of this current to the power of the trade-winds, which, blowing always in the fame direction, carry the waters of the Atlantic ocean to the weftward, till they are ftopped by the oppofing continent on the weft of the Gulf of Mexico, and are thus accumulated there, and run down the Gulf of Florida. Philof. Tranf. V. 71, p. 335. Governor Pownal has given

Cinctured with gold while *ten* fond brothers ſtand,
And guard the beauty on her native land,
Soft breathes the gale, the current gently moves,
And bears to Norway's coaſts her infant-loves.
—So the ſad mother at the moon of night
From bloody Memphis ſtole her ſilent flight;
Wrapp'd her dear babe beneath her folded veſt,
And claſp'd the treaſure to her throbbing breaſt,
With ſoothing whiſpers huſh'd its feeble cry,
Preſs'd the ſoft kiſs, and breath'd the ſecret ſigh.—

an elegant map of this Gulf-ſtream, tracing it from the Gulf of Florida northward as far as Cape Sable in Nova Scotia, and then acroſs the Atlantic ocean to the coaſt of Africa, between the Canary Iſlands and Senegal, increaſing in breadth, as it runs, till it occupies five or ſix degrees of latitude. The Governor likewiſe aſcribes this current to the force of the trade-winds *protruding* the waters weſtward, till they are oppoſed by the continent, and accumulated in the Gulf of Mexico. He very ingeniouſly obſerves, that a great eddy muſt be produced in the Atlantic ocean between this Gulf-ſtream and the weſterly current protruded by the tropical winds, and in this eddy are found the immenſe fields of floating vegetables, called Saragoſa weeds, and Gulf weeds, and ſome light woods, which circulate in theſe vaſt eddies, or are occaſionally driven out of them by the winds. Hydraulic and Nautical Obſervations by Governor Pownal, 1787. Other currents are mentioned by the Governor in this ingenious work, as thoſe in the Indian Sea, northward of the line, which are aſcribed to the influence of the Monſoons. It is probable, that in proceſs of time the narrow tract of land on the weſt of the Gulph of Mexico, may be worn away by this elevation of water daſhing againſt it, by which this immenſe current would ceaſe to exiſt, and a wonderful change take place in the Gulf of Mexico and Weſt-Indian iſlands, by the ſubſiding of the ſea, which might probably lay all thoſe iſlands into one, or join them to the continent.

—With dauntlefs ftep fhe feeks the winding fhore,
Hears unappall'd the glimmering torrents roar;
With Paper-flags a floating cradle weaves,
And hides the fmiling boy in Lotus-leaves;
Gives her white bofom to his eager lips,
The falt-tears mingling with the milk he fips;
Waits on the reed-crown'd brink with pious guile,
And trufts the fcaly monfters of the Nile.---
---Erewhile majeftic from his lone abode,
Embaffador of Heaven, the Prophet trod;
Wrench'd the red fcourge from proud Oppreffion's hands,
And broke, curft Slavery! thy iron bands.

Hark! heard ye not that piercing cry,
Which fhook the waves and rent the fky?---

E'en now, e'en now, on yonder Weftern fhores
Weeps pale Defpair, and writhing Anguifh roars:
E'en now in Afric's groves with hideous yell
Fierce SLAVERY ftalks, and flips the dogs of hell;

From vale to vale the gathering cries rebound,
And ſable nations tremble at the ſound!—
—Ye bands of Senators! whoſe ſuffrage ſways
Britannia's realms, whom either Ind obeys;
Who right the injured, and reward the brave,
Stretch your ſtrong arm, for ye have power to ſave!
Throned in the vaulted heart, his dread reſort,
Inexorable Conscience holds his court;
With ſtill ſmall voice the plots of Guilt alarms,
Bares his maſk'd brow, his lifted hand diſarms;
But, wrapp'd in night with terrors all his own,
He ſpeaks in thunder, when the deed is done.
Hear him, ye Senates! hear this truth ſublime,
"He, who allows oppression, shares the crime."

No radiant pearl, which creſted Fortune wears,
No gem, that twinkling hangs from Beauty's ears,
Not the bright ſtars, which Night's blue arch adorn,
Nor riſing ſuns that gild the vernal morn,

Shine with ſuch luſtre as the tear, that flows
Down Virtue's manly cheek for others' woes.

Here ceaſed the Muse, and dropp'd her tuneful ſhell,
Tumultuous woes her panting boſom ſwell,
O'er her fluſh'd cheek her gauzy veil ſhe throws,
Folds her white arms, and bends her laurel'd brows;
For human guilt awhile the Goddeſs ſighs,
And human ſorrows dim celeſtial eyes.

INTERLUDE III.

Bookseller. POETRY has been called a ſiſter-art both to Painting and to Muſic; I wiſh to know, what are the particulars of their relationſhip?

Poet. It has been already obſerved, that the principal part of the language of poetry conſiſts of thoſe words, which are expreſſive of the ideas, which we originally receive by the organ of ſight; and in this it nearly indeed reſembles painting; which can expreſs itſelf in no other way, but by exciting the ideas or ſenſations belonging to the ſenſe of viſion. But beſides this eſſential ſimilitude in the language of the poetic pen and pencil, theſe two ſiſters reſemble each other, if I may ſo ſay, in many of their habits and manners. The painter, to produce a ſtrong effect, makes a few parts of his picture large, diſtinct, and luminous, and keeps the remainder in ſhadow, or even beneath its natural ſize and colour, to give eminence to the principal figure. This is ſimilar to the common manner of poetic compoſition, where the ſubordinate characters are kept down, to elevate and give conſequence to the hero or heroine of the piece.

In the ſouth aile of the cathedral church at Lichfield, there is an antient monument of a recumbent figure; the head and neck of which lie on a roll of matting in a kind of niche or cavern in the wall; and about five feet diſtant horizontally in another opening or

cavern in the wall are ſeen the feet and ankles, with ſome folds of garment, lying alſo on a matt; and though the intermediate ſpace is a ſolid ſtone-wall, yet the imagination ſupplies the deficiency, and the whole figure ſeems to exiſt before our eyes. Does not this reſemble one of the arts both of the painter and the poet? The former often ſhows a muſcular arm amidſt a group of figures, or an impaſſioned face; and, hiding the remainder of the body behind other objects, leaves the imagination to complete it. The latter, deſcribing a ſingle feature or attitude in picturеſque words, produces before the mind an image of the whole.

I remember ſeeing a print, in which was repreſented a ſhrivelled hand ſtretched through an iron grate, in the ſtone floor of a priſon-yard, to reach at a meſs of porrage, which affected me with more horrid ideas of the diſtreſs of the priſoner in the dungeon below, than could have been perhaps produced by an exhibition of the whole perſon. And in the following beautiful ſcenery from the Midſummer-night's Dream, (in which I have taken the liberty to alter the place of a comma), the deſcription of the ſwimming ſtep and prominent belly bring the whole figure before our eyes with the diſtinctneſs of reality.

> When we have laugh'd to ſee the ſails conceive,
> And grow big-bellied with the wanton wind;
> Which ſhe with pretty and with ſwimming gate,
> Following her womb, (then rich with my young ſquire),
> Would imitate, and ſail upon the land.

There is a third ſiſter-feature, which belongs both to the pictorial and poetic art; and that is the making ſentiments and paſſions viſible, as it were, to the ſpectator; this is done in both arts by deſcribing or pourtraying the effects or changes which thoſe ſentiments or paſſions produce upon the body. At the end of the unaltered play of Lear, there is a beautiful example of poetic painting; the old King is introduced as dying from grief for the loſs of Cordelia;

at this crisis, Shakespear, conceiving the robe of the King to be held together by a clasp, represents him as only saying to an attendant courtier in a faint voice, " Pray, Sir, undo this button,—thank you, Sir," and dies. Thus by the art of the poet, the oppression at the bosom of the dying King is made visible, not described in words.

B. What are the features, in which these Sister-arts do not resemble each other?

P. The ingenious Bishop Berkeley, in his treatise on Vision, a work of great ability, has evinced, that the colours which we see, are only a language suggesting to our minds the ideas of solidity and extension, which we had before received by the sense of touch. Thus when we view the trunk of a tree, our eye can only acquaint us with the colours or shades; and from the previous experience of the sense of touch, these suggest to us the cylindrical form, with the prominent or depressed wrinkles on it. From hence it appears, that there is the strictest analogy between colours and sounds; as they are both but languages, which do not represent their correspondent ideas, but only suggest them to the mind from the habits or associations of previous experience. It is therefore reasonable to conclude, that the more artificial arrangements of these two languages by the poet and the painter bear a similar analogy.

But in one circumstance the Pen and the Pencil differ widely from each other, and that is the quantity of Time which they can include in their respective representations. The former can unravel a long series of events, which may constitute the history of days or years; while the latter can exhibit only the actions of a moment. The Poet is happier in describing successive scenes; the Painter in representing stationary ones: both have their advantages.

Where the passions are introduced, as the Poet, on one hand, has the power gradually to prepare the mind of his reader by previous climacteric circumstances; the Painter, on the other hand, can throw stronger illumination and distinctness on the principal moment or

cataſtrophe of the action; beſides the advantage he has in uſing an univerſal language, which can be *read* in an inſtant of time. Thus where a great number of figures are all ſeen together, ſupporting or contraſting each other, and contributing to explain or aggrandize the principal effect, we view a picture with agreeable ſurpriſe, and contemplate it with unceaſing admiration. In the repreſentation of the ſacrifice of Jephtha's Daughter, a print done from a painting of Ant. Coypel, at one glance of the eye we read all the intereſting paſſages of the laſt act of a well-written tragedy; ſo much poetry is there condenſed into a moment of time.

B. Will you now oblige me with an account of the relationſhip between Poetry, and her other ſiſter, Muſic?

P. In the poetry of our language I don't think we are to look for any thing analogous to the notes of the gamut: for, except perhaps in a few exclamations or interrogations, we are at liberty to raiſe or ſink our voice an octave or two at pleaſure, without altering the ſenſe of the words. Hence, if either poetry or proſe be read in melodious tones of voice, as is done in recitativo, or in chaunting, it muſt depend on the ſpeaker, not on the writer: for though words may be ſelected which are leſs harſh than others, that is, which have fewer ſudden ſtops or abrupt conſonants amongſt the vowels, or with fewer ſibilant letters, yet this does not conſtitute melody, which conſiſts of agreeable ſucceſſions of notes referable to the gamut; or harmony, which conſiſts of agreeable combinations of them. If the Chineſe language has many words of ſimilar articulation, which yet ſignify different ideas, when ſpoken in a higher or lower muſical note, as ſome travellers affirm, it muſt be capable of much finer effect, in reſpect to the audible part of poetry, than any language we are acquainted with.

There is however another affinity, in which poetry and muſic more nearly reſemble each other than has generally been underſtood, and that is in their meaſure or time. There are but two kinds

of time acknowledged in modern muſic, which are called *triple time*, and *common time*. The former of theſe is divided by bars, each bar containing three crotchets, or a proportional number of their ſubdiviſions into quavers and ſemiquavers. This kind of time is analogous to the meaſure of our heroic or iambic verſe. Thus the two following couplets are each of them divided into five bars of *triple time*, each bar conſiſting of two crotchets and two quavers; nor can they be divided into bars analogous to *common time* without the bars interfering with ſome of the crotchets, ſo as to divide them.

3 Soft-warbling beaks | in each bright bloſ | ſom move,
4 And vo | cal roſebuds thrill | the inchanted grove. |

In theſe lines there is a quaver and a crotchet alternately in every bar, except in the laſt, in which *the in* make two ſemiquavers; the *e* is ſuppoſed by Grammarians to be cut off, which any one's ear will readily determine not to be true.

3 Life buds or breathes | from Indus to | the poles,
4 And the | vaſt ſurface kind | les, as it rolls. |

In theſe lines there is a quaver and a crotchet alternately in the firſt bar; a quaver, two crotchets, and a quaver, make the ſecond bar. In the third bar there is a quaver, a crotchet, and a reſt after the crotchet, that is after the word *poles*, and two quavers begin the next line. The fourth bar conſiſts of quavers and crotchets alternately. In the laſt bar there is a quaver, and a reſt after it, viz. after the word *kindles*; and then two quavers and a crotchet. You will clearly perceive the truth of this, if you prick the muſical characters above mentioned under the verſes.

The *common time* of muſicians is divided into bars, each of which contains four crotchets, or a proportional number of their ſubdiviſion into quavers and ſemiquavers. This kind of muſical time is analogous to the dactyle verſes of our language, the moſt popular

inſtances of which are in Mr. Anſtie's Bath-Guide. In this kind of verſe the bar does not begin till after the firſt or ſecond ſyllable; and where the verſe is quite complete, and written by a good ear, theſe firſt ſyllables added to the laſt complete the bar, exactly in this alſo correſponding with many pieces of muſic;

$\frac{2}{4}$ Yet | if one may gueſs by the | ſize of his calf, Sir,
He | weighs above twenty-three | ſtone and a half, Sir.

$\frac{2}{4}$ Maſter | Mamozet's head was not | finiſhed ſo ſoon,
For it | took up the barber a | whole afternoon.

In theſe lines each bar conſiſts of a crotchet, two quavers, another crotchet, and two more quavers: which are equal to four crotchets, and, like many bars of *common time* in muſic, may be ſubdivided into two in beating time without diſturbing the meaſure.

The following verſes from Shenſtone belong likewiſe to common time:

$\frac{2}{4}$ A | river or a ſea |
Was to him a diſh | of tea,
And a king | dom bread and butter.

The firſt and ſecond bars conſiſt each of a crotchet, a quaver, a crotchet, a quaver, a crotchet. The third bar conſiſts of a quaver, two crotchets, a quaver, a crotchet. The laſt bar is not complete without adding the letter A, which begins the firſt line, and then it conſiſts of a quaver, a crotchet, a quaver, a crotchet, two quavers.

It muſt be obſerved, that the crotchets in triple time are in general played by muſicians ſlower than thoſe of common time, and hence minuets are generally pricked in triple time, and country dances generally in common time. So the verſes above related, which are analogous to *triple time;* are generally read ſlower than

thoſe analogous to *common time*; and are thence generally uſed for graver compoſitions. I ſuppoſe all the different kinds of verſes to be found in our odes, which have any meaſure at all, might be arranged under one or other of theſe two muſical times; allowing a note or two ſometimes to precede the commencement of the bar, and occaſional reſts, as in muſical compoſitions: if this was attended to by thoſe who ſet poetry to muſic, it is probable the ſound and ſenſe would oftener coincide. Whether theſe muſical times can be applied to the lyric and heroic verſes of the Greek and Latin poets, I do not pretend to determine; certain it is, that the dactyle verſe of our language, when it is ended with a double rhime, much reſembles the meaſure of Homer and Virgil, except in the length of the lines.

B. Then there is no relationſhip between the other two of theſe ſiſter-ladies, Painting and Muſic?

P. There is at leaſt a mathematical relationſhip, or perhaps I ought rather to have ſaid a metaphyſical relationſhip, between them. Sir Iſaac Newton has obſerved, that the breadths of the ſeven primary colours in the Sun's image refracted by a priſm, are proportional to the ſeven muſical notes of the gamut, or to the intervals of the eight ſounds contained in an octave, that is, proportional to the following numbers:

Sol.	La.	Fa.	Sol.	La.	Mi.	Fa.	Sol.
Red.	Orange.	Yellow.	Green.	Blue.	Indigo.	Violet.	
$\frac{1}{9}$	$\frac{1}{16}$	$\frac{1}{10}$	$\frac{1}{9}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{9}$	

Newton's Optics, Book I. part 2. prop. 3. and 6. Dr. Smith, in his Harmonics, has an explanatory note upon this happy diſcovery, as he terms it, of Newton. Sect. 4. Art. 7.

From this curious coincidence, it has been propofed to produce a luminous mufic, confifting of fucceffions or combinations of colours, analogous to a tune in refpect to the proportions above mentioned. This might be performed by a ftrong light, made by means of Mr. Argand's lamps, paffing through coloured glaffes, and falling on a defined part of a wall, with moveable blinds before them, which might communicate with the keys of a harpfichord, and thus produce at the fame time vifible and audible mufic in unifon with each other.

The execution of this idea is faid by Mr. Guyot to have been attempted by Father Caffel, without much fuccefs.

If this fhould be again attempted, there is another curious coincidence between founds and colours, difcovered by Dr. Darwin, of Shrewfbury, and explained in a paper on what he calls *Ocular Spectra*, in the Philofophical Tranfactions, Vol. LXXVI. which might much facilitate the execution of it. In this treatife the Doctor has demonftrated, that we fee certain colours, not only with greater eafe and diftinctnefs, but with relief and pleafure, after having for fome time contemplated other certain colours; as green after red, or red after green; orange after blue, or blue after orange; yellow after violet, or violet after yellow. This, he fhews, arifes from the *ocular fpectrum* of the colour laft viewed coinciding with the *irritation* of the colour now under contemplation. Now as the pleafure we receive from the fenfation of melodious notes, independent of the previous affociations of agreeable ideas with them, muft arife from our hearing fome proportions of founds after others more eafily, diftinctly, or agreeably; and as there is a coincidence between the proportions of the primary colours, and the primary founds, if they may be fo called; he argues, that the fame laws muft govern the fenfations of both. In this circumftance, therefore, confifts the fifterhood of Mufic and Painting; and hence they claim a right to borrow metaphors from each other; muficians to fpeak of the brilliancy of founds, and the light and fhade of a concerto; and painters of the

harmony of colours; and the tone of a picture. Thus it is not quite so absurd, as was imagined, when the blind man asked if the colour scarlet was like the sound of a trumpet. As the coincidence or opposition of these *ocular spectra*, (or colours which remain in the eye after we have for some time contemplated a luminous object) are more easily and more accurately ascertained, now their laws have been investigated by Dr. Darwin, than the *relicts* of evanescent sounds upon the ear; it is to be wished that some ingenious musician would further cultivate this curious field of science: for if visible music can be agreeably produced, it would be more easy to add sentiment to it by representations of groves and Cupids, and sleeping nymphs amid the changing colours, than is commonly done by the words of audible music?

B. You mentioned the greater length of the verses of Homer and Virgil. Had not these poets great advantage in the superiority of their languages compared to our own?

P. It is probable, that the introduction of philosophy into a country must gradually affect the language of it; as philosophy converses in more appropriated and abstracted terms; and thus by degrees eradicates the abundance of metaphor, which is used in the more early ages of society. Otherwise, though the Greek compound words have more vowels in proportion to their consonants than the English ones, yet the modes of compounding them are less general; as may be seen by variety of instances given in the preface of the Translators, prefixed to the SYSTEM OF VEGETABLES by the Lichfield Society; which happy property of our own language rendered that translation of Linneus as expressive and as concise, perhaps more so than the original.

And in one respect, I believe, the English language serves the purpose of poetry better than the antient ones, I mean in the greater ease of producing personifications; for as our nouns have in general

no genders affixed to them in profe-compofitions, and in the habits of converfation, they become eafily perfonified only by the addition of a mafculine or feminine pronoun, as,

> Pale Melancholy fits, and round *her* throws
> A death-like filence, and a dread repofe.
>
> *Pope's Abelard.*

And fecondly, as moft of our nouns have the article *a* or *the* prefixed to them in profe-writing and in converfation, they in general become perfonified even by the omiffion of thefe articles; as in the bold figure of Shipwreck in Mifs Seward's Elegy on Capt. Cook:

> But round the fteepy rocks and dangerous ftrand
> Rolls the white furf, and SHIPWRECK guards the land.

Add to this, that if the verfes in our heroic poetry be fhorter than thofe of the ancients, our words likewife are fhorter; and in refpect to their meafure or time, which has erroneoufly been called melody and harmony, I doubt, from what has been faid above, whether we are fo much inferior as is generally believed; fince many paffages, which have been ftolen from antient poets, have been tranflated into our language without lofing any thing of the beauty of the verfification. The following line tranflated from Juvenal by Dr. Johnfon, is much fuperior to the original:

> Slow rifes Worth by Poverty deprefs'd.

The original is as follows:

> Difficile emergunt, quorum virtutibus obftat
> Res angufta domi.

B. I am glad to hear you acknowledge the thefts of the modern poets from the antient ones, whose works I suppose have been reckoned lawful plunder in all ages. But have not you borrowed epithets, phrases, and even half a line occasionally from modern poets?

P. It may be difficult to mark the exact boundary of what should be termed plagiarism: where the sentiment and expression are both borrowed without due acknowledgement, there can be no doubt;—single words, on the contrary, taken from other authors, cannot convict a writer of plagiarism: they are lawful game, wild by nature, the property of all who can capture them;—and perhaps a few common flowers of speech may be gathered, as we pass over our neighbour's inclosure, without stigmatising us with the title of thieves; but we must not therefore plunder his cultivated fruit.

The four lines at the end of the plant Upas are imitated from Dr. Young's Night Thoughts. The line in the episode adjoined to Cassia, "The salt tear mingling with the milk he sips," is from an interesting and humane passage in Langhorne's Justice of Peace. There are probably many others, which, if I could recollect them, should here be acknowledged. As it is, like exotic plants, their mixture with the native ones, I hope, adds beauty to my Botanic Garden: and such as it is, *Mr. Bookseller*, I now leave it to you to desire the Ladies and Gentlemen to walk in; but please to apprize them, that, like the spectators at an unskilful exhibition in some village-barn, I hope they will make Good-humour one of their party; and thus theirselves supply the defects of the representation.

THE

LOVES OF THE PLANTS.

CANTO IV.

NOW the broad Sun his golden orb unſhrouds,
Flames in the weſt, and paints the parted clouds;
O'er heaven's wide arch refracted luſtres flow,
And bend in air the many-colour'd bow.—
—The tuneful Goddeſs on the glowing ſky
Fix'd in mute ecſtaſy her gliſtening eye;

And then her lute to ſweeter tones ſhe ſtrung,
And ſwell'd with ſofter chords the Paphian ſong;
Long aiſes of Oaks return'd the ſilver ſound,
And amorous Echoes talk'd along the ground;
Pleas'd Lichfield liſten'd from her ſacred bowers,
Bow'd her tall groves, and ſhook her ſtately towers.

" Nymph! not for thee the radiant day returns,
Nymph! not for thee the golden ſolſtice burns,
Refulgent CEREA!—at the duſky hour
She ſeeks with penſive ſtep the mountain-bower,

Pleas'd Lichfield. l. 11. The ſcenery deſcribed at the beginning of the firſt part, or economy of vegetation, is taken from a botanic garden about a mile from Lichfield.

Cerea. l. 15. Cactus grandiflorus, or Cereus. Twenty males, one female. This flower is a native of Jamaica and Veracrux. It expands a moſt exquiſitely beautiful corol, and emits a moſt fragrant odour for a few hours in the night, and then cloſes to open no more. The flower is nearly a foot in diameter; the inſide of the calyx of a ſplendid yellow, and the numerous petals of a pure white: it begins to open about ſeven or eight o'clock in the evening, and cloſes before ſun-riſe in the morning. Martyn's Letters, p. 294. The Ciſtus labdaniferus, and many other flowers, loſe their petals after having been a few hours expanded in the day-time; for in theſe plants the ſtigma is ſoon impregnated by the numerous anthers: in many flowers of the Ciſtus labdaniferus I obſerved two or three of the ſtamens were perpetually bent into contact with the piſtil.

The Nyctanthes, called Arabian Jaſmine, is another flower, which expands a beautiful corol, and gives out a moſt delicate perfume during the night, and not in the day, in its native country, whence its name; botanical philoſophers have not yet explained

Bright as the blufh of rifing morn, and warms
The dull cold eye of Midnight with her charms.
There to the fkies fhe lifts her pencill'd brows,
Opes her fair lips, and breathes her virgin vows;
Eyes the white zenyth; counts the funs that roll
Their diftant fires, and blaze around the Pole;
Or marks where Jove directs his glittering car
O'er Heaven's blue vault,—Herfelf a brighter ftar.
—There as foft zephyrs fweep with paufing airs
Thy fnowy neck, and part thy fhadowy hairs,
Sweet Maid of Night! to Cynthia's fober beams
Glows thy warm cheek, thy polifh'd bofom gleams.
In crowds around thee gaze the admiring fwains,
And guard in filence the enchanted plains;

this wonderful property; perhaps the plant fleeps during the day as fome animals do; and its odoriferous glands only omit their fragrance during the expanfion of the petals; that is, during its waking hours: the Geranium trifte has the fame property of giving up its fragrance only in the night. The flowers of the Cucurbita lagenaria are faid to clofe when the fun fhines upon them. In our climate many flowers, as tragopogon, and hibifus, clofe their flowers before the hotteft part of the day comes on; and the flowers of fome fpecies of cucubalus, and Silene, vifcous campion, are clofed all day; but when the fun leaves them they expand, and emit a very agreeable fcent; whence fuch plants are termed noctiflora.

Drop the ſtill tear, or breathe the impaſſion'd ſigh,
And drink inebriate rapture from thine eye.
Thus when old Needwood's hoary ſcenes the Night
Paints with blue ſhadow, and with milky light;
Where MUNDY pour'd, the liſtening nymphs among,
Loud to the echoing vales his parting ſong;
With meaſured ſtep the Fairy Sovereign treads,
Shakes her high plume, and glitters o'er the meads;
Round each green holly leads her ſportive train,
And little footſteps mark the circled plain;
Each haunted rill with ſilver voices rings,
And Night's ſweet bird in livelier accents ſings.

Ere the bright ſtar, which leads the morning ſky,
Hangs o'er the bluſhing eaſt his diamond eye,
The chaſte TROPÆO leaves her ſecret bed;
A ſaint-like glory trembles round her head;

Where Mundy. l. 35. Alluding to an unpubliſhed poem by F. N. C. Mundy, Eſq. on his leaving Needwood-Foreſt. See the paſſage in the notes at the end of this volume.

Tropæolum. l. 45. Majus. Garden Naſturtion, or greater Indian creſs. Eight males, one female. Miſs E. C. Linneus firſt obſerved the Tropæolum Majus to emit ſparks or

Eight watchfùl ſwains along the lawns of night
With amorous ſteps purſue the virgin light;
O'er her fair form the electric luſtre plays,
And cold ſhe moves amid the lambent blaze.
So ſhines the glow-fly, when the ſun retires,
And gems the night-air with phoſphoric fires;

flaſhes in the mornings before ſun-riſe, during the months of June or July, and alſo during the twilight in the evening, but not after total darkneſs came on; theſe ſingular cintillations were ſhewn to her father and other philoſophers; and Mr. Wilcke, a celebrated electrician, believed them to be electric. Lin. Spec. Plantar. p. 490. Swediſh Acts for the year 1762. Pulteney's View of Linneus, p. 220. Nor is this more wonderful than that the electric eel and torpedo ſhould give voluntary ſhocks of electricity; and in this plant perhaps, as in thoſe animals, it may be a mode of defence, by which it harraſſes or deſtroys the night-flying inſects which infeſt it; and probably it may emit the ſame ſparks during the day, which muſt be then inviſible. This curious ſubject deſerves further inveſtigation. See Dictamnus. The ceaſing to ſhine of this plant after twilight might induce one to conceive, that it abſorbed and emitted light, like the Bolognian Phoſphorus, or calcined oyſter-ſhells, ſo well explained by Mr. B. Wilſon, and by T. B. Beccari. Exper. on Phoſphori, by B. Wilſon, Dodſley. The light of the evening, at the ſame diſtance from noon, is much greater, as I have repeatedly obſerved, than the light of the morning: this is owing, I ſuppoſe, to the phoſphoreſcent quality of almoſt all bodies, in a greater or leſs degree, which thus abſorb light during the ſun-ſhine, and continue to emit it again for ſome time afterwards, though not in ſuch quantity as to produce apparent ſcintillations. The nectary of this plant grows from what is ſuppoſed to be the calyx; but this ſuppoſed calyx is coloured; and perhaps, from this circumſtance of its bearing the nectary, ſhould rather be eſteemed a part of the corol. See an additional note at the end of the poem.

So ſhines the glow-fly. l. 51. In Jamaica, in ſome ſeaſons of the year, the fire-flies are ſeen in the evenings in great abundance. When they ſettle on the ground, the bull-frog greedily devours them; which ſeems to have given origin to a curious, though cruel, method of deſtroying theſe animals: if red-hot pieces of charcoal be thrown towards them in the duſk of the evening, they leap at them, and, haſtily ſwallowing them, are burnt to death.

Thus o'er the marſh aerial lights betray,
And charm the unwary wanderer from his way.
So when thy King, Aſſyria, fierce and proud,
Three human victims to his idol vow'd;
Rear'd a vaſt pyre before the golden ſhrine
Of ſulphurous coal, and pitch-exſuding pine;—
—Loud roar the flames, the iron noſtrils breathe,
And the huge bellows pant and heave beneath;
Bright and more bright the blazing deluge flows,
And white with ſeven-fold heat the furnace glows.
And now the Monarch fix'd with dread ſurpriſe
Deep in the burning vault his dazzled eyes.
" Lo! Three unbound amid the frightful glare,
" Unſcorch'd their ſandals, and unſing'd their hair!
" And now a fourth with ſeraph-beauty bright
" Deſcends, accoſts them, and outſhines the light!
" Fierce flames innocuous, as they ſtep, retire!
" And ſlow they move amid a world of fire!"
He ſpoke,—to Heaven his arms repentant ſpread,
And kneeling bow'd his gem-incircled head.

Two Siſter-Nymphs, the fair AVENAS, lead
Their fleecy ſquadrons on the lawns of Tweed;
Paſs with light ſtep his wave-worn banks along,
And wake his Echoes with their ſilver tongue;
Or touch the reed, as gentle Love inſpires,
In notes accordant to their chaſte deſires.

I.

" Sweet ECHO! ſleeps thy vocal ſhell,
" Where this high arch o'erhangs the dell;
" While Tweed with ſun-reflecting ſtreams
" Chequers thy rocks with dancing beams?—

Ovena. l. 73. Oat. The numerous families of graſſes have all three males, and two females, except Anthoxanthum, which gives the grateful ſmell to hay, and has but two males. The herbs of this order of vegetables ſupport the countleſs tribes of graminivorous animals. The ſeeds of the ſmaller kinds of graſſes, as of aira, poa, briza, ſtipa, &c. are the ſuſtenance of many ſorts of birds. The ſeeds of the large graſſes, as of wheat, barley, rye, oats, ſupply food to the human ſpecies.

It ſeems to have required more ingenuity to think of feeding nations of mankind with ſo ſmall a ſeed, than with the potatoe of Mexico, or the bread-fruit of the ſouthern iſlands; hence Ceres in Egypt, which was the birth-place of our European arts, was deſervedly celebrated amongſt their divinities, as well as Oſyris, who invented the Plough.

Mr. Wahlborn obſerves, that as wheat, rye, and many of the graſſes, and plantain, lift up their anthers on long filaments, and thus expoſe the encloſed fecundating duſt to be waſhed away by the rains, a ſcarcity of corn is produced by wet ſummers; hence the neceſſity of a careful choice of ſeed-wheat, as that, which had not received the duſt of the anthers, will not grow, though it may appear well to the eye. The ſtraw of the oat ſeems to have been the firſt muſical inſtrument, invented during the paſtoral ages of the world, before the diſcovery of metals. See note on Ciſtus.

II.

" Here may no clamours harſh intrude,
" No brawling hound or clarion rude;
" Here no fell beaſt of midnight prowl,
" And teach thy tortured cliffs to howl!

III.

" Be thine to pour theſe vales along
" Some artleſs Shepherd's evening ſong;
" While Night's ſweet bird, from yon high ſpray
" Reſponſive, liſtens to his lay.

IV.

" And if, like me, ſome love-lorn Maid
" Should ſing her ſorrows to thy ſhade,
" Oh, ſooth her breaſt, ye rocks around!
" With ſofteſt ſympathy of ſound."

From ozier bowers the brooding Halcyons peep,
The Swans purſuing cleave the glaſſy deep,

On hovering wings the wondering Reed-larks play,
And ſilent Bitterns liſten to the lay.—
Three ſhepherd-ſwains beneath the beechen ſhades
Twine rival garlands for the tuneful maids ;
On each ſmooth bark the myſtic love-knot frame,
Or on white ſands inſcribe the favour'd name.
Green ſwells the beech, the widening knots improve,
So ſpread the tender growths of living love ;
Wave follows wave, the letter'd lines decay,
So Love's ſoft forms uncultured melt away.

From Time's remoteſt dawn where China brings
In proud ſucceſſion all her Patriot-Kings ;
O'er deſert-ſands, deep gulphs, and hills ſublime,
Extends her maſſy wall from clime to clime ;
With bells and dragons creſts her Pagod-bowers,
Her ſilken palaces, and porcelain towers ;
With long canals a thouſand nations laves ;
Plants all her wilds, and peoples all her waves ;

Slow treads fair CANNABIS the breezy ſtrand,
The diſtaff ſtreams diſhevell'd in her hand;
Now to the left her ivory neck inclines,
And leads in Paphian curves its azure lines;
Dark waves the fringed lid, the warm cheek glows,
And the fair ear the parting locks diſcloſe;
Now to the right with airy ſweep ſhe bends,
Quick join the threads, the dancing ſpole depends.
—*Five* Swains attracted guard the Nymph, by turns
Her grace inchants them, and her beauty burns;
To each ſhe bows with ſweet aſſuaſive ſmile,
Hears his ſoft vows, and turns her ſpole the while.

Cannabis. l. 115. Chineſe Hemp. Two houſes. Five males. A new ſpecies of hemp, of which an account is given by K. Fitzgerald, Eſq. in a letter to Sir Joſeph Banks, and which is believed to be much ſuperior to the hemp of other countries. A few ſeeds of this plant were ſown in England on the 4th of June, and grew to fourteen feet ſeven inches in height by the middle of October; they were nearly ſeven inches in circumference, and bore many lateral branches, and produced very white and tough fibres. At ſome parts of the time theſe plants grew nearly eleven inches in a week.—Philoſ. Tranſ. Vol. LXXII. p. 46.

Paphian curves. l. 118. In his ingenious work, entitled, The Analyſis of Beauty, Mr. Hogarth believes that the triangular glaſs, which was dedicated to Venus in her temple at Paphos, contained in it a line bending ſpirally round a cone with a certain degree of curvature, and that this pyramidal outline and ſerpentine curve conſtitute the principles of Grace and Beauty.

So when with light and ſhade, concordant ſtrife!
Stern CLOTHO weaves the chequer'd thread of life;
Hour after hour the growing line extends,
The cradle and the coffin bound its ends;
Soft cords of ſilk the whirling ſpoles reveal,
If ſmiling Fortune turn the giddy wheel;
But if ſweet Love with baby-fingers twines,
And wets with dewy lips the lengthening lines,
Skein after ſkein celeſtial tints unfold,
And all the ſilken-tiſſue ſhines with gold.

Warm with ſweet bluſhes bright GALANTHA glows,
And prints with frolic ſtep the melting ſnows:

Galanthus. l. 137. Nivalis. Snowdrop. Six males, one female. The firſt flower that appears after the winter ſolſtice. See Stillingfleet's Calendar of Flora.

Some ſnowdrop-roots taken up in winter, and boiled, had the inſipid mucilaginous taſte of the Orchis, and, if cured in the ſame manner, would probably make as good ſalep. The roots of the Hyacinth, I am informed, are equally inſipid, and might be uſed as an article of food. Gmelin, in his hiſtory of Siberia, ſays the Martigon Lily makes a part of the food of that country, which is of the ſame natural order as the ſnow-drop. Some roots of Crocus, which I boiled, had a diſagreeable flavour.

The difficulty of raiſing the Orchis from ſeed has, perhaps, been a principal reaſon of its not being cultivated in this country as an article of food. It is affirmed, by one of the Linnean School, in the Amœnit. Academ. that the ſeeds of Orchis will ripen, if

O'er ſilent floods, white hills, and glittering meads,
Six rival ſwains the playful beauty leads,
Chi es with her dulcet voice the tardy Spring,
Bids ſlumbering Zephyr ſtretch his folded wing,
Wakes the hoarſe Cuckoo in his gloomy cave,
And calls the wondering Dormouſe from his grave,
Bids the mute Redbreaſt cheer the budding grove,
And plaintive Ringdove tune her notes to love.

Spring! with thy own ſweet ſmile and tuneful tongue,
Delighted Bellis calls her infant throng.
Each on his reed aſtride, the Cherub-train
Watch her kind looks, and circle o'er the plain;

you deſtroy the new bulb; and that Lily of the Valley, Convallaria, will produce many more ſeeds, and ripen them, if the roots be crowded in a garden-pot, ſo as to prevent them from producing many bulbs, Vol. VI. p. 120. It is probable either of theſe methods may ſucceed with theſe and other bulbous-rooted plants, as ſnowdrops, and might render their cultivation profitable in this climate. The root of the aſphodelus ramoſus, branchy aſphodel, is uſed to feed ſwine in France; the ſtarch is obtained from the alſtromeria licta. Memoires d'Agricult.

Bellis prolifera. l. 148. Hen and chicken Daiſy; in this beautiful monſter not only the impletion or doubling of the petals takes place, as deſcribed in the note on Alcea; but a numerous circlet of leſs flowers on peduncles, or footſtalks, riſe from the ſides of the calyx, and ſurround the proliferous parent. The ſame occurs in Calendula, marigold; in Heracium, hawk-weed; and in Scabioſa, Scabious. Phil. Botan. p. 82.

Now with young wonder touch the ſliding ſnail,
Admire his eye-tipp'd horns, and painted mail;
Chaſe with quick ſtep, and eager arms outſpread,
The pauſing Butterfly from mead to mead;
Or twine green oziers with the fragrant gale,
The azure harebel, and the primroſe pale,
Join hand in hand, and in proceſſion gay
Adorn with votive wreaths the ſhrine of May.
—So moves the Goddeſs to the Idalian groves,
And leads her gold-hair'd family of Loves.
Theſe, from the flaming furnace, ſtrong and bold
Pour the red ſteel in many a ſandy mould;
On tinkling anvils (with Vulcanian art),
Turn with hot tongs, and forge the dreadful dart;

The fragrant Gale. l. 155. The buds of the Myrica Gale poſſeſs an agreeable aromatic fragrance, and might be worth attending to as an article of the Materia Medica. Mr. Sparman ſuſpects, that the green wax-like ſubſtance, with which at certain times of the year the berries of the Myrica cerifera, or candle-berry Myrtle, are covered, are depoſited there by inſects. It is uſed by the inhabitants for making candles, which he ſays burn rather better than thoſe made of tallow. Voyage to the Cape, V. I. p. 345. Du Halde gives an account of a white wax made by ſmall inſects round the branches of a tree in China in great quantity, which is there collected for medical and economical purpoſes. The tree is called Tong-tſin. Deſcrip. of China. Vol. I. p. 230.

The barbed head on whirling jaſpers grind,
And dip the point in poiſon for the mind;
Each poliſh'd ſhaft with ſnow-white plumage wing,
Or ſtrain the bow reluctant to its ſtring.
Thoſe on light pinion twine with buſy hands,
Or ſtretch from bough to bough the flowery bands;
Scare the dark beetle, as he wheels on high,
Or catch in ſilken nets the gilded fly;
Call the young Zephyrs to their fragrant bowers,
And ſtay with kiſſes ſweet the Vernal Hours.

Where, as proud Maſſon riſes rude and bleak,
And with misſhapen turrets creſts the Peak,
Old Matlock gapes with marble jaws, beneath,
And o'er ſcar'd Derwent bends his flinty teeth;
Deep in wide caves below the dangerous ſoil
Blue ſulphurs flame, impriſon'd waters boil.

Deep in wide caves. l. 179. The arguments which tend to ſhew that the warm ſprings of this country are produced from ſteam raiſed by deep ſubterraneous fires, and afterwards condenſed between the ſtrata of the mountains, appear to me much more concluſive than the idea of their being warmed by chemical combinations near the ſurface of

Impetuous ſteams in ſpiral columns riſe
Through rifted rocks, impatient for the ſkies;
Or o'er bright ſeas of bubbling lavas blow;
As heave and toſs the billowy fires below;
Condenſed on high, in wandering rills they glide
From Maſſon's dome, and burſt his ſparry ſide;
Round his grey towers, and down his fringed walls,
From cliff to cliff, the liquid treaſure falls;
In beds of ſtalactite, bright ores among,
O'er corals, ſhells, and cryſtals, winds along;

the earth; for, 1ſt, their heat has kept accurately the ſame perhaps for many centuries; certainly as long as we have been poſſeſſed of good thermometers; which cannot be well explained, without ſuppoſing that they are firſt in a boiling ſtate. For as the heat of boiling water is 212, and that of the internal parts of the earth 48, it is eaſy to underſtand, that the ſteam raiſed from boiling water, after being condenſed in ſome mountain, and paſſing from thence through a certain ſpace of the cold earth, muſt be cooled always to a given degree; and it is probable the diſtance from the exit of the ſpring, to the place where the ſteam is condenſed, might be gueſſed by the degree of its warmth.

2. In the dry ſummer of 1780, when all other ſprings were either dry or much diminiſhed, thoſe of Buxton and Matlock (as I was well informed on the ſpot), had ſuffered no diminution; which proves that the ſources of theſe warm ſprings are at great depths below the ſurface of the earth.

3. There are numerous perpendicular fiſſures in the rocks of Derbyſhire, in which the ores of lead and copper are found, and which paſs to unknown depths, and might thence afford a paſſage to ſteam from great ſubterraneous fires.

4. If theſe waters were heated by the decompoſition of pyrites, there would be ſome chalybeate taſte or ſulphureous ſmell in them. See note in part I. on the exiſtence of central fires.

Cruſts the green moſſes, and the tangled wood,
And ſparkling plunges to its parent flood.
—O'er the warm wave a ſmiling youth preſides,
Attunes its murmurs, its meanders guides,
(The blooming Fucus) in her ſparry coves
To amorous Echo ſings his *ſecret* loves,
Bathes his fair forehead in the miſty ſtream,
And with ſweet breath perfumes the riſing ſteam.
—So, erſt, an Angel o'er Betheſda's ſprings,
Each morn deſcending, ſhook his dewy wings;

Fucus. l. 195. Clandeſtine marriage. A ſpecies of Fucus, or of Conſerva, ſoon appears in all baſons which contain water. Dr. Prieſtley found that great quantities of pure dephlogiſticated air were given up in water at the points of this vegetable, particularly in the ſunſhine, and that hence it contributed to preſerve the water in reſervoirs from becoming putrid. The minute diviſions of the leaves of ſubaquatic plants as mentioned in the note on Trapa, and of the gills of fiſh, ſeem to ſerve another purpoſe beſides that of increaſing their ſurface, which has not, I believe, been attended to, and that is to facilitate the ſeparation of the air, which is mechanically mixed or chemically diſſolved in water by their points or edges; this appears on immerſing a dry hairy leaf in water freſh from a pump; innumerable globules like quickſilver appear on almoſt every point; for the extremities of theſe points attract the particles of water leſs forcibly than thoſe particles attract each other; hence the contained air, whoſe elaſticity was but juſt balanced by the attractive power of the ſurrounding particles of water to each other, finds at the point of each fibre a place where the reſiſtance to its expanſion is leſs; and in conſequence it there expands, and becomes a bubble of air. It is eaſy to foreſee that the rays of the ſunſhine, by being refracted and in part reflected by the two ſurfaces of theſe minute air-bubbles, muſt impart to them much more heat than to the tranſparent water; and thus facilitate their aſcent by further expanding them; that the points of vegetables attract the particles of water leſs than they attract each other, is ſeen by the ſpherical form of dew-drops on the points of graſs. See note on Vegetable Reſpiration in Part I.

And as his bright tranflucent form He laves,
Salubrious powers enrich the troubled waves.

Amphibious Nymph, from Nile's prolific bed
Emerging TRAPA lifts her pearly head;

Trapa. l. 204. Four males, one female. The lower leaves of this plant grow under water, and are divided into minute capillary ramifications; while the upper leaves are broad and round, and have air-bladders in their footftalks to fupport them above the furface of the water. As the aerial leaves of vegetables do the office of lungs, by expofing a large furface of veffels with their contained fluids to the influence of the air; fo thefe aquatic leaves anfwer a fimilar purpofe like the gills of fifh; and perhaps gain from water or give it to a fimilar material. As the material thus neceffary to life feems to abound more in air than in water, the fubaquatic leaves of this plant, and of fifymbrium, oenanthe, ranunculus aquatilis, water crowfoot, and fome others, are cut into fine divifions to increafe the furface; whilft thofe above water are undivided. So the plants on high mountains have their upper leaves more divided, as pimpinella, petrofelinum, and others, becaufe here the air is thinner, and thence a larger furface of contact is required. The ftream of water alfo paffes but once along the gills of fifh, as it is fooner deprived of its virtue; whereas the air is both received and ejected by the action of the lungs of land-animals. The whale feems to be an exception to the above, as he receives water and fpouts it out again from an organ, which I fuppofe to be a refpiratory one. As fpring-water is nearly of the fame degree of heat in all climates, the aquatic plants, which grow in rills or fountains, are found equally in the torrid, temperate, and frigid zones, as water-crefs, water-parfnip, ranunculus, and many others.

In warmer climates the watery grounds are ufefully cultivated, as with rice; and the roots of fome aquatic plants are faid to have fupplied food, as the ancient Lotus in Egypt, which fome have fuppofed to be the Nymphæa.—In Siberia the roots of the Butomus, or flowering rufh, are eaten, which is well worth further enquiry, as they grow fpontaneoufly in our ditches and rivers, which at prefent produce no efculent vegetables; and might thence become an article of ufeful cultivation. Herodotus affirms that the Egyptian Lotus grows in the Nile, and refembles a Lily. That the natives dry it in the fun, and take the pulp out of it, which grows like the head of a poppy, and bake it for bread. Enterpe. Many grit-ftones and coals, which I have feen, feem to bear an impreffion of the roots of the Nymphæa, which are often three or four inches thick, efpecially the white-flowered one.

Fair glows her virgin cheek and modeſt breaſt,
A panoply of ſcales deforms the reſt;
Her quivering fins and panting gills ſhe hides,
But ſpreads her ſilver arms upon the tides;
Slow as ſhe ſails, her ivory neck ſhe laves,
And ſhakes her golden treſſes o'er the waves.
Charm'd round the Nymph, in circling gambols glide
Four Nereid-forms, or ſhoot along the tide;
Now all as one they riſe with frolic ſpring,
And beat the wondering air on humid wing;
Now all deſcending plunge beneath the main,
And laſh the foam with undulating train;
Above, below, they wheel, retreat, advance,
In air and ocean weave the mazy dance;
Bow their quick heads, and point their diamond eyes,
And twinkle to the ſun with ever-changing dyes.

Where Andes, creſted with volcanic beams,
Sheds a long line of light on Plata's ſtreams;

Opes all his ſprings, unlocks his golden caves,
And feeds and freights the immeaſurable waves;
Delighted OCYMA at twilight hours
Calls her light car, and leaves the ſultry bowers;
Love's riſing ray, and Youth's ſeductive dye,
Bloom'd on her cheek, and brighten'd in her eye;

Ocymum ſalinum. l. 225. Saline Baſil. Claſs Two Powers. The Abbe Molina, in his Hiſtory of Chili, tranſlated from the Italian by the Abbe Grewvel, mentions a ſpecies of Baſil, which he calls Ocymum ſalinum: he ſays it reſembles the common baſil, except that the ſtalk is round and jointed; and that though it grows ſixty miles from the ſea, yet every morning it is covered with ſaline globules, which are hard and ſplendid, appearing at a diſtance like dew; and that each plant furniſhes about half an ounce of fine ſalt every day, which the peaſants collect, and uſe as common ſalt, but eſteem it ſuperior in flavour.

As an article of diet, ſalt ſeems to act ſimply as a ſtimulus, not containing any nouriſhment, and is the only foſſil ſubſtance which the caprice of mankind has yet taken into their ſtomachs along with their food; and, like all other unnatural ſtimuli, is not neceſſary to people in health, and contributes to weaken our ſyſtem; though it may be uſeful as a medicine. It ſeems to be the immediate cauſe of the ſea-ſcurvy, as thoſe patients quickly recover by the uſe of freſh proviſions; and is probably a remote cauſe of ſcrophula (which conſiſts in the want of irritability in the abſorbent veſſels) and is therefore ſerviceable to theſe patients; as wine is neceſſary to thoſe whoſe ſtomachs have been weakened by its uſe. The univerſality of the uſe of ſalt with our food, and in our cookery, has rendered it difficult to prove the truth of theſe obſervations. I ſuſpect that fleſh-meat cut into thin ſlices, either raw or boiled, might be preſerved in coarſe ſugar or treacle; and thus a very nouriſhing and ſalutary diet might be preſented to our ſeamen. See note on Salt-rocks, in Vol. I. Canto II. If a perſon unaccuſtomed to much ſalt ſhould eat a couple of red herrings, his inſenſible perſpiration will be ſo much increaſed by the ſtimulus of the ſalt, that he will find it neceſſary in about two hours to drink a quart of water: the effects of a continued uſe of ſalt in weakening the action of the lymphatic ſyſtem may hence be deduced.

Chaſte, pure, and white, a zone of ſilver graced
Her tender breaſt, as white, as pure, as chaſte;—
By *four* fond ſwains in playful circles drawn,
On glowing wheels ſhe tracks the moon-bright lawn,
Mounts the rude cliff, unveils her bluſhing charms,
And calls the panting zephyrs to her arms.
Emerged from ocean ſprings the vaporous air,
Bathes her light limbs, uncurls her amber hair,
Incruſts her beamy form with films ſaline,
And Beauty blazes through the cryſtal ſhrine.—
So with pellucid ſtuds the ice-flower gems
Her rimy foliage and her candied ſtems.
So from his glaſſy horns, and pearly eyes,
The diamond-beetle darts a thouſand dyes;
Mounts with enamel'd wings the veſper gale,
And wheeling ſhines in adamantine mail.

Thus when loud thunders o'er Gomorrah burſt,
And heaving earthquakes ſhook his realms accurſt,

Ice-flower. l. 239. Meſembryanthemum cryſtallinum.

An Angel-gueſt led forth the trembling Fair
With ſhadowy hand, and warn'd the guiltleſs pair;
" Haſte from theſe lands of ſin, ye Righteous! fly,
" Speed the quick ſtep, nor turn the lingering eye!"—
—Such the command, as fabling Bards recite,
When Orpheus charm'd the griſly King of Night;
Sooth'd the pale phantoms with his plaintive lay,
And led the fair Aſſurgent into day.—
Wide yawn'd the earth, the fiery tempeſt flaſh'd,
And towns and towers in one vaſt ruin craſh'd;—
Onward they move,—loud horror roars behind,
And ſhrieks of Anguiſh bellow in the wind.
With many a ſob, amid a thouſand fears,
The beauteous wanderer pours her guſhing tears;
Each ſoft connection rends her troubled breaſt,
—She turns, unconſcious of the ſtern beheſt!—
" I faint!—I fall!—ah, me!—ſenſations chill
" Shoot through my bones, my ſhuddering boſom thrill!
" I freeze! I freeze! juſt Heaven regards my fault,
" Numbs my cold limbs, and hardens into ſalt!—

"Not yet, not yet, your dying love resign!
"This last, last kiss receive!—no longer thine!"—
She said, and ceased,—her stiffen'd form He press'd,
And strain'd the briny column to his breast;
Printed with quivering lips the lifeless snow,
And wept, and gazed the monument of woe.
So when Æneas through the flames of Troy
Bore his pale sire, and led his lovely boy;
With loitering step the fair Creusa stay'd,
And Death involved her in eternal shade.—
—Oft the lone Pilgrim, that his road forsakes,
Marks the wide ruins, and the sulphur'd lakes;
On mouldering piles amid asphaltic mud
Hears the hoarse bittern, where Gomorrah stood;
Recals the unhappy Pair with lifted eye,
Leans on the crystal tomb, and breathes the silent sigh.

With net-wove sash and glittering gorget dress'd,
And scarlet robe lapell'd upon her breast,

Stern Ara frowns, the meaſured march aſſumes,
Trails her long lance, and nods her ſhadowy plumes;
While Love's ſoft beams illume her treacherous eyes,
And Beauty lightens through the thin diſguiſe.
So erſt, when Hercules, untamed by toil,
Own'd the ſoft power of Dejanira's ſmile;—
His lion-ſpoils the laughing Fair demands,
And gives the diſtaff to his awkward hands;

Arum. l. 285. Cuckow-pint, of the claſs Gynandria, or maſculine ladies. The piſtil or female part of the flower, riſes like a club, is covered above or clothed, as it were, by the anthers or males; and ſome of the ſpecies have a large ſcarlet blotch in the middle of every leaf.

The ſingular and wonderful ſtructure of this flower has occaſioned many diſputes amongſt botaniſts. See Tourniff. Malpig. Dillen. Riven. &c. The receptacle is enlarged into a naked club, with the germs at its baſe; the ſtamens are affixed to the receptacle amidſt the germs (a natural prodigy), and thus do not need the aſſiſtance of elevating filaments: hence the flower may be ſaid to be inverted. *Families of Plants* tranſlated from Linneus, p. 618.

The ſpadix of this plant is frequently quite white, or coloured, and the leaves liable to be ſtreaked with white, and to have black or ſcarlet blotches on them. As the plant has no corol or bloſſom, it is probable the coloured juices in theſe parts of the ſheath or leaves may ſerve the ſame purpoſe as the coloured juices in the petals of other flowers; from which I ſuppoſe the honey to be prepared. See note on Helleborus. I am informed that thoſe tulip-roots which have a red cuticle produce red flowers. See Rubia.

When the petals of the tulip become ſtriped with many colours, the plant loſes almoſt half of its height; and the method of making them thus break into colours is by tranſplanting them into a meagre or ſandy ſoil, *after they have previouſly enjoyed a richer ſoil:* hence it appears, that the plant is weakened when the flower becomes variegated. See note on Anemone. For the acquired habits of vegetables, See Tulipa, Orchis.

The roots of the Arum are ſcratched up and eaten by thruſhes in ſevere ſnowy ſeaſons. White's Hiſt. of Selbourn, p. 43.

O'er her white neck the briſtly mane ſhe throws,
And binds the gaping whiſkers on her brows;
Plaits round her ſlender waiſt the ſhaggy veſt,
And claſps the velvet paws acroſs her breaſt.
Next with ſoft hands the knotted club ſhe rears,
Heaves up from earth, and on her ſhoulder bears.
Onward with loftier ſtep the Beauty treads,
And trails the brinded ermine o'er the meads;
Wolves, bears, and pards, forſake the affrighted groves,
And grinning Satyrs tremble, as ſhe moves.

Caryo's ſweet ſmile Dianthus proud admires,
And gazing burns with unallow'd deſires;

Dianthus. l. 303. Superbus. Proud Pink. There is a kind of pink called Fairchild's mule, which is here ſuppoſed to be produced between a Dianthus ſuperbus, and the Caryophyllus, Clove. The Dianthus ſuperbus emits a moſt fragrant odour, particularly at night. Vegetable mules ſupply an irrefragable argument in favour of the ſexual ſyſtem of botany. They are ſaid to be numerous; and, like the mules of the animal kingdom, not always to continue their ſpecies by ſeed. There is an account of a curious mule from the Antirrhinum linaria, Toad-flax, in the Amœnit. Academ. V. I. No. 3. and many hybrid plants deſcribed in No. 32. The Urtica alienata is an evergreen plant, which appears to be a nettle from the male flowers, and a Pellitory (Parietaria) from the female ones and the fruit; and is hence between both. Murray, Syſt. Veg. Amongſt the Engliſh indigenous plants, the veronica hybrida mule Speedwel is ſuppoſed to have originated from the officinal one, and the ſpiked one. And the Sibthorpia Europæa to have

With ſighs and ſorrows her compaſſion moves,
And wins the damſel to illicit loves.
The Monſter-offſpring heirs the father's pride,
Maſk'd in the damaſk beauties of the bride.
So, when the Nightingale in eaſtern bowers
On quivering pinion woos the Queen of flowers;
Inhales her fragrance, as he hangs in air,
And melts with melody the bluſhing fair;
Half-roſe, half-bird, a beauteous Monſter ſprings,
Waves his thin leaves, and claps his gloſſy wings;
Long horrent thorns his moſſy legs ſurround,
And tendril-talons root him to the ground;

for its parents the golden ſaxifrage and marſh pennywort. Pulteney's View of Linneus, p. 253. Mr. Graberg, Mr. Schreber, and Mr. Ramſtrom, ſeem of opinion, that the internal ſtructure or parts of fructification in mule-plants reſemble the female parent; but that the habit or external ſtructure reſembles the male parent. See treatiſes under the above names in V. VI. Amœnit. Academic. The mule produced from a horſe and the aſs reſembles the horſe externally with his ears, main, and tail; but with the nature or manners of an aſs: but the Hinnus, or creature produced from a male aſs, and a mare, reſembles the father externally in ſtature, aſh-colour, and the black croſs, but with the nature or manners of a horſe. The breed from Spaniſh rams and Swediſh ewes reſembled the Spaniſh ſheep in wool, ſtature, and external form; but was as hardy as the Swediſh ſheep; and the contrary of thoſe which were produced from Swediſh rams and Spaniſh ewes. The offſpring from the male goat of Angora and the Swediſh female goat had long ſoft camel's hair; but that from the male Swediſh goat, and the female one of Angora, had no improvement of their wool. An Engliſh ram without horns, and a Swediſh horned ewe, produced ſheep without horns. Amœn. Acad. V. VI. p. 13.

Green films of rind his wrinkled neck o'erſpread,
And crimſon petals creſt his curled head;
Soft-warbling beaks in each bright bloſſom move,
And vocal Roſebuds thrill the enchanted grove!—
Admiring Evening ſtays her beamy ſtar,
And ſtill Night liſtens from his ebon car;
While on white wings deſcending Houries throng,
And drink the floods of odour and of ſong.

When from his golden urn the Solſtice pours,
O'er Afric's ſable ſons the ſultry hours;
When not a gale flits o'er her tawny hills,
Save where the dry Harmattan breathes and kills;
When ſtretch'd in duſt her gaſping panthers lie,
And writh'd in foamy folds her ſerpents die;

The dry Harmattan. l. 328. The Harmattan is a ſingular wind blowing from the interior parts of Africa to the Atlantic ocean, ſometimes for a few hours, ſometimes for ſeveral days without regular periods. It is always attended with a fog or haze, ſo denſe as to render thoſe objects inviſible which are at the diſtance of a quarter of a mile; the ſun appears through it only about noon, and then of a dilute red, and very minute particles ſubſide from the miſty air ſo as to make the graſs, and the ſkins of negroes appear whitiſh. The extreme dryneſs which attends this wind or fog, without dews, withers and quite dries the leaves of vegetables; and is ſaid by Dr. Lind at ſome ſeaſons to be

Indignant Atlas mourns his leafless woods,
And Gambia trembles for his finking floods;
Contagion stalks along the briny fand,
And Ocean rolls his fickning shoals to land.

fatal and malignant to mankind; probably after much preceding wet, when it may become loaded with the exhalations from putrid marshes; at other feafons it is faid to check epidemic difeafes, to cure fluxes, and to heal ulcers and cutaneous eruptions; which is probably effected by its yielding no moifture to the mouths of the external abforbent veffels, by which the action of the other branches of the abforbent fyftem is increafed to fupply the deficiency. *Account of the Harmattan, Phil. Tranf.* V.LXXI.

The Reverend Mr. Sterling gives an account of a darknefs for fix or eight hours at Detroit in America, on the 19th of October, 1762, in which the fun appeared as red as blood, and thrice its ufual fize: fome rain falling, covered white paper with dark drops, like fulphur or dirt, which burnt like wet gunpowder, and the air had a very fulphureous fmell. He fuppofes this to have been emitted from fome diftant earthquake or volcano. Philof. Tranf. V.LIII. p. 63.

In many circumftances this wind feems much to refemble the dry fog which covered moft parts of Europe for many weeks in the fummer of 1780, which has been fuppofed to have had a volcanic origin, as it fucceeded the violent eruption of Mount Hecla, and its neighbourhood. From the fubfidence of a white powder, it feems probable that the Harmattan has a fimilar origin, from the unexplored mountains of Africa. Nor is it improbable, that the epidemic coughs, which occafionally traverfe immenfe tracts of country, may be the products of volcanic eruptions; nor impoflible, that at fome future time contagious miafmata may be thus emitted from fubterraneous furnaces, in fuch abundance as to contaminate the whole atmofphere, and depopulate the earth!

His fickening fhoals. l. 334. Mr. Marfden relates, that in the ifland of Sumatra, during the November of 1775, the dry monfoons, or S. E. winds, continued fo much longer than ufual, that the large rivers became dry; and prodigious quantities of fea-fifh, dead and dying, were feen floating for leagues on the fea, and driven on the beach by the tides. This was fuppofed to have been caufed by the great evaporation, and the deficiency of frefh-water rivers having rendered the fea too falt for its inhabitants. The feafon then became fo fickly as to deftroy great numbers of people, both foreigners and natives. Phil. Tranf. V.LXXI. p. 384.

—Fair CHUNDA ſmiles amid the burning waſte,
Her brow unturban'd, and her zone unbrac'd;
Ten brother-youths with light umbrella's ſhade,
Or fan with buſy hands the panting maid;
Looſe wave her locks, diſcloſing, as they break,
The riſing boſom and averted cheek;
Claſp'd round her ivory neck with ſtuds of gold
Flows her thin veſt in many a gauzy fold;
O'er her light limbs the dim tranſparence plays,
And the fair form, it ſeems to hide, betrays.

Chunda, l. 335. Chundali Borrum is the name which the natives give to this plant; it is the Hedyſarum gyrans, or moving plant; its claſs is two brotherhoods, ten males. Its leaves are continually in ſpontaneous motion; ſome riſing and others falling; and others whirling circularly by twiſting their ſtems; this ſpontaneous movement of the leaves, when the air is quite ſtill and very warm, ſeems to be neceſſary to the plant, as perpetual reſpiration is to animal life. A more particular account with a good print of the Hedyſarum gyrans is given by M. Brouſſonet in a paper on vegetable motions in the Hiſtoire de l'Academie des Sciences. Ann. 1784. p. 609.

There are many other inſtances of ſpontaneous movements of the parts of vegetables. In the Marchantia polymorpha ſome yellow wool proceeds from the flower-bearing anthers, which moves ſpontaneouſly in the anther, while it drops its duſt like atoms. Murray, Syſt. Veg. See note on Collinſonia for other inſtances of vegetable ſpontaneity. Add to this, that as the ſleep of animals conſiſt in a ſuſpenſion of voluntary motion, and as vegetables are likewiſe ſubject to ſleep, there is reaſon to conclude, that the various actions of opening and cloſing their petals and foliage may be juſtly aſcribed to a voluntary power: for without the faculty of volition, ſleep would not have been neceſſary to them.



Engraved by [illegible]

Hedysarum gyr[illegible]s.

Cold from a thoufand rocks, where Ganges leads
The gufhing waters to his fultry meads;
By moon-crown'd mofques with gay reflections glides,
And vaft pagodas trembling on his fides;
With fweet loquacity NELUMBO fails,
Shouts to his fhores, and parleys with his gales;
Invokes his echoes, as fhe moves along,
And thrills his ripling furges with her fong.
—As round the Nymph her liftening lovers play,
And guard the Beauty on her watery way;
Charm'd on the brink relenting tygers gaze,
And paufing buffaloes forget to graze;
Admiring elephants forfake their woods,
Stretch their wide ears, and wade into the floods;

Nelumbo. l. 349. Nymphæa Nelumbo. A beautiful rofe-red flower on a receptacle as large as an artichoke. The capfule is perforated with holes at the top, and the feeds rattle in it. Perfect leaves are feen in the feeds before they germinate. Linneus, who has enlifted all our fenfes into the fervice of botany, has obferved this rattling of the Nelumbo; and mentions what he calls an electric murmur, like diftant thunder in hop-yards, when the wind blows, and afks the caufe of it. We have one kind of pedicularis in our meadows, which has obtained the name of rattle-grafs, from the rattling of its dry feed-veffels under our feet.

In ſilent herds the wondering ſea-calves lave,
Or nod their ſlimy foreheads o'er the wave;
Poiſed on ſtill wing attentive vultures ſweep,
And winking crocodiles are lull'd to ſleep.

Where leads the northern Star his lucid train
High o'er the ſnow-clad earth, and icy main,
With milky light the white horizon ſtreams,
And to the moon each ſparkling mountain gleams.—
Slow o'er the printed ſnows with ſilent walk
Huge ſhaggy forms acroſs the twilight ſtalk;
And ever and anon with hideous ſound
Burſt the thick ribs of ice, and thunder round.—
There, as old Winter flaps his hoary wing,
And lingering leaves his empire to the Spring,
Pierced with quick ſhafts of ſilver-ſhooting light
Fly in dark troops the dazled imps of night.—

Burſt the thick ribs of ice. l. 370. The violent cracks of ice heard from the Glaciers ſeem to be cauſed by ſome of the ſnow being melted in the middle of the day; and the water thus produced running down into vallies of ice, and congealing again in a few hours, forces off by its expanſion large precipices from the ice-mountains.

" Awake, my Love!" enamour'd MUSCHUS cries,
" Stretch thy fair limbs, refulgent Maid arife;
" Ope thy fweet eye-lids to the rifing ray,
" And hail with ruby lips returning day.
" Down the white hills diffolving torrents pour,
" Green fprings the turf, and purple blows the flower;
" His torpid wing the Rail exulting tries,
" Mounts the foft gale, and wantons in the fkies;
" Rife, let us mark how bloom the awaken'd groves,
" And 'mid the banks of rofes *hide* our loves."

Mufchus. l. 375. Corallinus, or lichen rangiferinus. Coral-mofs. Clandeftine-marriage. This mofs vegetates beneath the fnow, where the degree of heat is always about 40; that is, in the middle between the freezing point, and the common heat of the earth; and is for many months of the winter the fole food of the rein-deer, who digs furrows in the fnow to find it; and as the milk and flefh of this animal is almoft the only fuftenance which can be procured during the long winters of the higher latitudes, this mofs may be faid to fupport fome millions of mankind.

The quick vegetation that occurs on the folution of the fnows in high latitudes appears very aftonifhing; it feems to arife from two caufes, 1. the long continuance of the approaching fun above the horizon; 2. the increafed irritability of plants which have been long expofed to the cold. See note on Anemone.

All the water-fowl on the lakes of Siberia are faid by Profeffor Gmelin to retreat fouthwards on the commencement of the froft, except the Rail, which fleeps buried in the fnow. Account of Siberia.

Night's tinſel beams on ſmooth Lock-lomond dance,
Impatient ÆGA views the bright expanſe;—
In vain her eyes the paſſing floods explore,
Wave after wave rolls freightleſs to the ſhore.
—Now dim amid the diſtant foam ſhe ſpies
A riſing ſpeck,—" 'tis! 'tis he!" ſhe cries;
As with firm arms he beats the ſtreams aſide,
And cleaves with riſing cheſt the toſſing tide,
With bended knee ſhe prints the humid ſands,
Up-turns her gliſtening eyes, and ſpreads her hands;
—" 'Tis he, 'tis he!—my Lord, my life, my love!
" Slumber, ye winds; ye billows, ceaſe to move!
" Beneath his arms your buoyant plumage ſpread,
" Ye Swans! ye Halcyons! hover round his head!"—

Æga. l. 386. Conferva ægagropila. It is found looſe in many lakes in a globular form, from the ſize of a walnut to that of a melon, much reſembling the balls of hair found in the ſtomachs of cows; it adheres to nothing, but rolls from one part of the lake to another. The Conferva vagabunda dwells on the European ſeas, travelling along in the midſt of the waves; (Spec. Plant.) Theſe may not improperly be called itinerant vegetables. In a ſimilar manner the Fucus natans (ſwimming) ſtrikes no roots into the earth, but floats on the ſea in very extenſive maſſes, and may be ſaid to be a plant of paſſage, as it is waſted by the winds from one ſhore to another.

—With eager ſtep the boiling ſurf ſhe braves,
And meets her refluent lover in the waves;
Looſe o'er the flood her azure mantle ſwims,
And the clear ſtream betrays her ſnowy limbs.

So on her ſea-girt tower fair HERO ſtood
At parting day, and mark'd the daſhing flood;
While high in air, the glimmering rocks above,
Shone the bright lamp, the pilot-ſtar of Love.
—With robe outſpread the wavering flame behind
She kneels, and guards it from the ſhifting wind;
Breathes to her Goddeſs all her vows, and guides
Her bold LEANDER o'er the duſky tides;
Wrings his wet hair, his briny boſom warms,
And claſps her panting lover in her arms.

Deep, in wide caverns and their ſhadowy ailes,
Daughter of Earth, the chaſte TRUFFELIA ſmiles;

Truffelia. l. 414. (Lycoperdom Tuber) Truffle. Clandeſtine marriage. This fungus never appears above ground, requiring little air, and perhaps no light. It is

On ſilvery beds, of ſoft aſbeſtus wove,
Meets her Gnome-huſband, and avows her love.
---*High* o'er her couch impending diamonds blaze,
And branching gold the cryſtal roof inlays;
With verdant light the modeſt emeralds glow,
Blue ſapphires glare, and rubies bluſh, *below*;
Light piers of lazuli the dome ſurround,
And pictured mochoes teſſelate the ground;
In glittering threads along reflective walls
The warm rill murmuring twinkles, as it falls;
Now ſink the Eolian ſtrings, and now they ſwell,
And Echoes woo in every vaulted cell;
While on white wings delighted Cupids play,
Shake their bright lamps, and ſhed celeſtial day.

Cloſed in an azure fig by fairy ſpells,
Boſom'd in down, fair CAPRI-FICA dwells;---

found by dogs or ſwine, who hunt it by the ſmell. Other plants, which have no buds or branches on their ſtems, as the graſſes, ſhoot out numerous ſtoles or ſcions under ground; and this the more, as their tops or herbs are eaten by cattle, and thus preſerve themſelves.

Caprificus. l. 430. Wild fig. The fruit of the fig is not a ſeed-veſſel, but a recep-

So ſleeps in ſilence the Curculio, ſhut
In the dark chambers of the cavern'd nut,
Erodes with ivory beak the vaulted ſhell,
And quits on filmy wings its narrow cell.

tacle incloſing the flower within it. As theſe trees bear ſome male and others female flowers, immured on all ſides by the fruit, the manner of their fecundation was very unintelligible, till Tournefort and Pontedera diſcovered, that a kind of gnat produced in the male figs carried the fecundating duſt on its wings, (Cynips Pſenes Syſt. Nat. 919.), and penetrating the female fig, thus impregnated the flowers; for the evidence of this wonderful fact, ſee the word Caprification, in Milne's Botanical Dictionary. The figs of this country are all female, and their ſeeds not prolific; and therefore they can only be propagated by layers and ſuckers.

Monſieur de la Hire has ſhewn in the Memoir. de l'Academ. de Science, that the ſummer figs of Paris, in Provence, Italy, and Malta, have all perfect ſtamina, and ripen not only their fruits, but their ſeed; from which ſeed other fig-trees are raiſed; but that the ſtamina of the autumnal figs are abortive, perhaps owing to the want of due warmth. Mr. Milne, in his Botanical Dictionary, (art. Caprification) ſays, that the cultivated fig-trees have a few male flowers placed above the female within the ſame covering or receptacle; which in warmer climates perform their proper office, but in colder ones become abortive. And Linneus obſerves, that ſome figs have the navel of the receptacle open; which was one reaſon that induced him to remove this plant from the claſs Clandeſtine Marriage to the claſs Polygamy. Lin. Spec. Plant.

From all theſe circumſtances I ſhould conjecture, that thoſe female fig flowers, which are cloſed on all ſides in the fruit or receptacle without any male ones, are monſters, which have been propagated for their fruit, like barberries, and grapes without ſeeds in them; and that the Caprification is either an ancient proceſs of imaginary uſe, and blindly followed in ſome countries, or that it may contribute to ripen the fig by decreaſing its vigour, like cutting off a circle of the bark from the branch of a pear-tree. Tournefort ſeems inclined to this opinion; who ſays, that the figs in Provence and at Paris ripen ſooner, if their buds be pricked with a ſtraw dipped in olive-oil. Plumbs and pears punctured by ſome inſects ripen ſooner, and the part round the puncture is ſweeter. Is not the honey-dew produced by the puncture of inſects? will not wounding the branch of a pear-tree, which is too vigorous, prevent the bloſſoms from falling off; as from ſome fig-trees the fruit is ſaid to fall off unleſs they are wounded by caprification? I had laſt ſpring ſix young trees of the Iſchia fig with fruit on them in pots in a ſtove; on removing them into larger boxes, they protruded very vigorous ſhoots, and the figs all fell off; which I aſcribed to the increaſed vigour of the plants.

So the pleafcd Linnet in the mofs-wove neft,
Waked into life beneath its parent's breaft,
Chirps in the gaping fhell, burfts forth erelong,
Shakes its néw plumes, and tries its tender fong.---
—And now the talifman fhe ftrikes, that charms
Her hufband-Sylph,---and calls him to her arms.---
Quick, the light Gnat her airy Lord beftrides,
With cobweb reins the flying courfer guides,
From cryftal fteeps of viewlefs ether fprings,
Cleaves the foft air on ftill expanded wings;
Darts like a funbeam o'er the boundlefs wave,
And feeks the beauty in her *fecret* cave.
So with quick impulfe through all nature's frame
Shoots the electric air its fubtle flame.
So turns the impatient needle to the pole,
Tho' mountains rife between, and oceans roll.

Where round the Orcades white torrents roar,
Scooping with ceafelefs rage the incumbent fhore,

Wide o'er the deep a duſky cavern bends
Its marble arms, and high in air impends;
Baſaltic piers the ponderous roof ſuſtain,
And ſteep their maſſy ſandals in the main;
Round the dim walls, and through the whiſpering ailes
Hoarſe breathes the wind, the glittering water boils.
Here the charm'd Byssus with his blooming bride
Spreads his green ſails, and braves the foaming tide;
The ſtar of Venus gilds the twilight wave,
And lights her votaries to the *ſecret* cave;
Light Cupids flutter round the nuptial bed,
And each coy Sea-maid hides her bluſhing head.

Baſaltic piers. l. 455. This deſcription alludes to the cave of Fingal in the iſland of Staffa. The baſaltic columns, which compoſe the Giants Cauſeway on the coaſt of Ireland, as well as thoſe which ſupport the cave of Fingal, are evidently of volcanic origin, as is well illuſtrated in an ingenious paper of Mr. Keir, in the Philoſ. Tranſ. who obſerved in the glaſs, which had been long in a fuſing heat at the bottom of the pots in the glaſs-houſes at Stourbridge, that cryſtals were produced of a form ſimilar to the parts of the baſaltic clumns of the Giants Cauſeway.

Byſſus. l. 459. Clandeſtine Marriage. It floats on the ſea in the day, and ſinks a little during the night; it is found in caverns on the northern ſhores, of a pale green colour, and as thin as paper.

Where cool'd by rills, and curtain'd round by woods,
Slopes the green dell to meet the briny floods,
The ſparkling noon-beams trembling on the tide,
The PROTEUS-LOVER woos his playful bride,
To win the fair he tries a thouſand forms,
Baſks on the ſands, or gambols in the ſtorms.
A Dolphin now, his ſcaly ſides he laves,
And bears the ſportive Damſel on the waves;
She ſtrikes the cymbal as he moves along,
And wondering Ocean liſtens to the ſong.
—And now a ſpotted Pard the lover ſtalks,
Plays round her ſteps, and guards her favour'd walks;

The Proteus-lover. l. 468. Conferva polymorpha. This vegetable is put amongſt the cryptogamia, or clandeſtine marriages, by Linneus; but, according to Mr. Ellis, the males and females are on different plants. Philoſ. Tranſ. Vol. LVII. It twice changes its colour, from red to brown, and then to black; and changes its form by loſing its lower leaves, and elongating ſome of the upper ones, ſo as to be miſtaken by the unſkilful for different plants. It grows on the ſhores of this country.

There is another plant, Medicago polymorpha, which may be ſaid to aſſume a great variety of ſhapes; as the ſeed-veſſels reſemble ſometimes ſnail-horns, at other times caterpillars with or without long hair upon them; by which means it is probable they ſometimes elude the depredations of thoſe inſects. The ſeeds of Calendula, Marygold, bend up like a hairy caterpillar, with their prickles briſtling outwards, and may thus deter ſome birds or inſects from preying upon them. Salicornia alſo aſſumes an animal ſimilitude. Phil. Bot. p. 87. See note on Iris in additional notes; and Cypripedia in Vol. I.

As with white teeth he prints her hand, carefs'd,
And lays his velvet paw upon her breaft,
O'er his round face her fnowy fingers ftrain
The filken knots, and fit the ribbon-rein.
---And now a Swan, he fpreads his plumy fails,
And proudly glides before the fanning gales;
Pleas'd on the flowery brink with graceful hand
She waves her floating lover to the land;
Bright fhines his finuous neck, with crimfon beak
He prints fond kiffes on her glowing cheek,
Spreads his broad wings, elates his ebon creft,
And clafps the beauty to his downy breaft.

A *hundred* virgins join a *hundred* fwains,
And fond ADONIS leads the fprightly trains;

Adonis. l. 490. Many males and many females live together in the fame flower. It may feem a folecifm in language to call a flower, which contains many of both fexes, an individual; and the more fo to call a tree or fhrub an individual, which confifts of fo many flowers. Every tree, indeed, ought to be confidered as a family or fwarm of its refpective buds; but the buds themfelves feem to be individual plants; becaufe each has leaves or lungs appropriated to it; and the bark of the tree is only a congeries of the roots of all thefe individual buds. Thus hollow oak-trees and willows are often feen with the whole wood decayed and gone; and yet the few remaining branches flourifh with vigour; but in refpect to the male and female parts of a flower, they do not

Pair after pair, along his ſacred groves
To Hymen's fane the bright proceſſion moves;
Each ſmiling youth a myrtle garland ſhades,
And wreaths of roſes veil the bluſhing maids;
Light Joys on twinkling feet attend the throng,
Weave the gay dance, or raiſe the frolic ſong;
—Thick, as they paſs, exulting Cupids fling
Promiſcuous arrows from the ſounding ſtring;
On wings of goſſamer ſoft Whiſpers fly,
And the ſly Glance ſteals ſide-long from the eye.
—As round his ſhrine the gaudy circles bow,
And ſeal with muttering lips the faithleſs vow,
Licentious Hymen joins their mingled hands,
And looſely twines the meretricious bands.—
Thus where pleaſed VENUS, in the ſouthern main,
Sheds all her ſmiles on Otaheite's plain,

deſtroy its individuality any more than the number of paps of a ſow, or the number of her cotyledons, each of which includes one of her young.

The ſociety, called the Areoi, in the iſland of Otaheite, conſiſts of about 100 males and 100 females, who form one promiſcuous marriage.

Wide o'er the iſle her ſilken net ſhe draws,
And the Loves laugh at all but Nature's laws."

Here ceaſed the Goddeſs,---o'er the ſilent ſtrings
Applauding Zephyrs ſwept their fluttering wings;
Enraptur'd Sylphs aroſe in murmuring crowds
To air-wove canopies and pillowy clouds;
Each Gnome reluctant ſought his earthy cell,
And each chill Floret clos'd her velvet bell.
Then, on ſoft tiptoe, NIGHT approaching near
Hung o'er the tuneleſs lyre his ſable ear;
Gem'd with bright ſtars the ſtill ethereal plain,
And bade his Nightingales repeat the ſtrain.



Drawn & Engraved by [illegible], Botanic Painter to her Majesty

Apocynum androsaemifolium.

ADDITIONAL NOTES.

P. 7. *Additional note to Curcuma.* Thefe antherlefs filaments feem to be an endeavour of the plant to produce more ftamens, as would appear from fome experiments of M. Reynier, inftituted for another purpofe: he cut away the ftamens of many flowers, with defign to prevent their fecundity, and in many inftances the flower threw out new filaments from the wounded part of different lengths, but did not produce new anthers. The experiments were made on the guem rivale, different kinds of mallows, and the æchinops citro. Critical Review for March, 1788.

P. 8. *Addition to the note on Iris.* In the Perfian Iris the end of the lower petal is purple, with white edges and orange ftreaks, creeping, as it were, into the mouth of the flower like an infect; by which deception in its native climate it probably prevents a fimilar infect from plundering it of its honey: the edges of the lower petal lap over thofe of the upper one, which prevents it from opening too wide on fine days, and facilitates its return at night; whence the rain is excluded, and the air admitted. See Polymorpha, Rubia, and Cypripedia, in Vol. I.

P. 12. *Additional note on Chondrilla.* In the natural ftate of the expanded flower of the barberry, the ftamens lie on the petals; under the concave fummits of which the anthers fhelter themfelves, and in this fituation remain perfectly rigid; but on touching the infide of the filament near its bafe with a fine briftle, or blunt needle, the ftamen inftantly bends upwards, and the anther, embracing the ftigma, fheds its duft. Obfervations on the Irritation of Vegetables, by T. E. Smith, M. D.

P. 15. *Addition to the note on Silene.* I faw a plant of the Dionæa Mufcipula, Flytrap of Venus, this day, in the collection of Sir B. Boothby, at Afhburn-Hall, Derbyfhire, Aug. 20th, 1788; and on drawing a ftraw along the middle of the rib of the leaves as they lay upon the ground round the ftem, each of them, in about a fecond of time, clofed and doubled itfelf up, croffing the thorns over the oppofite edge of the leaf, like the teeth of a fpring rat-trap: of this plant I was favoured with an elegant coloured drawing, by Mifs Maria Jackfon, of Tarporly, in Chefhire, a Lady who adds much botanical knowledge to many other elegant acquirements.

In the Apocynum Androsæmifolium, one kind of Dog's-bane, the anthers converge over the nectaries, which consist of five glandular oval corpuscles surrounding the germ; and at the same time admit air to the nectaries at the interstice between each anther. But when a fly inserts its proboscis between these anthers to plunder the honey, they converge closer, and with such violence as to detain the fly, which thus generally perishes. This account was related to me by R. W. Darwin, Esq. of Elston, in Nottinghamshire, who shewed me the plant in flower, July 2d, 1788, with a fly thus held fast by the end of its proboscis, and was well seen by a magnifying lens, and which in vain repeatedly struggled to disengage itself, till the converging anthers were separated by means of a pin: on some days he had observed that almost every flower of this elegant plant had a fly in it thus entangled; and a few weeks afterwards favoured me with his further observations on this subject.

" My Apocynum is not yet out of flower. I have often visited it, and have frequently found four or five flies, some alive, and some dead, in its flowers; they are generally caught by the trunk or proboscis, sometimes by the trunk and a leg; there is one at present only caught by a leg: I don't know that this plant sleeps, as the flowers remain open in the night; yet the flies frequently make their escape. In a plant of Mr. Ordoyno's, an ingenious gardener at Newark, who is possessed of a great collection of plants, I saw many flowers of an Apocynum with three dead flies in each; they are a thin-bodied fly, and rather less than the common house-fly; but I have seen two or three other sorts of flies thus arrested by the plant. Aug. 12, 1788."

P. 18. *Additional note on Ilex.* The efficient cause, which renders the hollies prickly in Needwood Forest only as high as the animals can reach them, may arise from the lower branches being constantly cropped by them, and thus shoot forth more luxuriant foliage: it is probable the shears in garden-hollies may produce the same effect, which is equally curious, as prickles are not thus produced on other plants.

P. 41. *Additional note on Ulva.* M. Hubert made some observations on the air contained in the cavities of the bambou. The stems of these canes were from 40 to 50 feet in height, and 4 or 5 inches in diameter, and might contain about 30 pints of elastic air. He cut a bambou, and introduced a lighted candle into the cavity, which was extinguished immediately on its entrance. He tried this about 60 times in a cavity of the bambou, containing about two pints. He introduced mice at different times into these cavities, which seemed to be somewhat affected, but soon recovered their agility. The stem of the bambou is not hollow till it rises more than one foot from the earth; the divisions between the cavities are convex downwards. Observ. sur la Physique, par M. Rozier, l. 33, p. 130.

P. 136. *Addition to the note on Tropæolum.* In Sweden a very curious phenomenon has been observed on certain flowers, by M. Haggren, Lecturer in Natural History. One evening he perceived a faint flash of light repeatedly dart from a Marigold; surprized at such an uncommon appearance, he resolved to examine it with attention; and,

to be aſſured that it was no deception of the eye, he placed a man near him, with orders to make a ſignal at the moment when he obſerved the light. They both ſaw it conſtantly at the ſame moment.

The light was moſt brilliant on Marigolds, of an orange or flame colour; but ſcarcely viſible on pale ones.

The flaſh was frequently ſeen on the ſame flower two or three times in quick ſucceſſion, but more commonly at intervals of ſeveral minutes; and when ſeveral flowers in the ſame place emitted their light together, it could be obſerved at a conſiderable diſtance.

This phænomenon was remarked in the months of July and Auguſt, at ſun-ſet, and for half an hour after, when the atmoſphere was clear; but after a rainy day, or when the air was loaded with vapours, nothing of it was ſeen.

The following flowers emitted flaſhes, more or leſs vivid, in this order:

1. The Marigold, *(Calendula officinalis)*.
2. Garden Naſturtion, *(Tropæolum majus)*.
3. Orange Lily, *(Lilium bulbiferum)*.
4. African Marigold. *(Tagetes patula et erecta)*.

Sometimes it was alſo obſerved on the Sun-flowers, *(Helianthus annuus)*. But bright yellow, or flame colour, ſeemed in general neceſſary for the production of this light; for it was never ſeen on the flowers of any other colour.

To diſcover whether ſome little inſects, or phoſphoric worms, might not be the cauſe of it, the flowers were carefully examined even with a microſcope, without any ſuch being found.

From the rapidity of the flaſh, and other circumſtances, it might be conjectured, that there is ſomething of electricity in this phænomenon. It is well known, that when the *piſtil* of a flower is impregnated, the *pollen* burſts away by its elaſticity, with which electricity may be combined. But M. Haggren, after having obſerved the flaſh from the Orange-lily, the *anthers* of which are a conſiderable ſpace diſtant from the *petals*, found that the light proceeded from the *petals* only; whence he concludes, that this electric light is cauſed by the *pollen*, which in flying off is ſcattered upon the *petals*. Obſer. Phyſique par M. Rozier, Vol. XXXIII. p. 111.

Deſcription of the Poiſon-Tree *in the Iſland of* JAVA. *Tranſlated from the original Dutch of* N. P. Foerſch.

THIS deſtructive tree is called in the Malayan language *Bohun-Upas*, and has been deſcribed by naturaliſts; but their accounts have been ſo tinctured with the *marvellous*, that the whole narration has been ſuppoſed to be an ingenious fiction by the generality of readers. Nor is this in the leaſt degree ſurprizing, when the circumſtances which we ſhall faithfully relate in this deſcription are conſidered.

I muſt acknowledge, that I long doubted the exiſtence of this tree, until a ſtricter enquiry convinced me of my error. I ſhall now only relate ſimple unadorned facts, of

which I have been an eye-witnefs. My readers may depend upon the fidelity of this account. In the year 1774, I was ftationed at Batavia, as a furgeon, in the fervice of the Dutch Eaft-India Company. During my refidence there I received feveral different accounts of the Bohon-Upas, and the violent effects of its poifon. They all then feemed incredible to me, but raifed my curiofity in fo high a degree, that I refolved to inveftigate this fubject thoroughly, and to truft only to *my own obfervations*. In confequence of this refolution, I applied to the Governor-General, Mr. Petrus Albertus van der Parra, for a pafs to travel through the country: my requeft was granted; and, having procured every information, I fet out on my expedition. I had procured a recommendation from an old Malayan prieft to another prieft, who lives on the neareft inhabitable fpot to the tree which is about fifteen or fixteen miles diftant. The letter proved of great fervice to me in my undertaking, as that prieft is appointed by the Emperor to refide there, in order to prepare for eternity the fouls of thofe who for different crimes are fentenced to approach the tree, and to procure the poifon,

The *Bohon-Upas* is fituated in the ifland of *Java*, about twenty-feven leagues from *Batavia*, fourteen from *Soura-Charta*, the feat of the Emperor, and between eighteen and twenty leagues from *Tinkjoe*, the prefent refidence of the Sultan of Java. It is furrounded on all fides by a circle of high hills and mountains; and the country round it, to the diftance of ten or twelve miles from the tree, is entirely barren. Not a tree nor a fhrub, nor even the leaft plant or grafs is to be feen. I have made the tour all around this dangerous fpot, at about eighteen miles diftant from the centre, and I found the afpect of the country on all fides equally dreary. The eafieft afcent of the hills is from that part where the old ecclefiaftic dwells. From his houfe the criminals are fent for the poifon, into which the points of all warlike inftruments are dipped. It is of high value, and produces a confiderable revenue to the Emperor.

Account of the manner in which the Poifon is procured.

The poifon which is procured from this tree is a gum that iffues out between the bark and the tree itfelf, like the *camphor*. Malefactors, who for their crimes are fentenced to die, are the only perfons who fetch the poifon; and this is the only chance they have of faving their lives. After fentence is pronounced upon them by the judge, they are afked in court, whether they will die by the hands of the executioner, or whether they will go to the Upas tree for a box of poifon? They commonly prefer the latter propofal, as there is not only fome chance of preferving their lives, but alfo a certainty, in cafe of their fafe return, that a provifion will be made for them in future by the Emperor. They are alfo permitted to afk a favour from the Emperor, which is generally of a trifling nature, and commonly granted. They are then provided with a filver or tortoifefhell box, in which they are to put the poifonous gum, and are properly inftructed how to proceed while they are upon their dangerous expedition. Among other particulars, they are always told to attend to the direction of the winds; as they are to go towards the tree before the wind, fo that the effluvia from the tree is always blown from them. They are told likewife, to travel with the utmoft difpatch, as that is the only

method of insuring a safe return. They are afterwards sent to the house of the old priest, to which place they are commonly attended by their friends and relations. Here they generally remain some days, in expectation of a favourable breeze. During that time the ecclesiastic prepares them for their future fate by prayers and admonitions.

When the hour of their departure arrives, the priest puts them on a long leather-cap, with two glasses before their eyes, which comes down as far as their breast; and also provides them with a pair of leather-gloves. They are then conducted by the priest, and their friends and relations, about two miles on their journey. Here the priest repeats his instructions, and tells them where they are to look for the tree. He shews them a hill, which they are told to ascend, and that on the other side they will find a rivulet, which they are to follow, and which will conduct them directly to the Upas. They now take leave of each other; and amidst prayers for their success, the delinquents hasten away.

The worthy old ecclesiastic has assured me, that during his residence there, for upwards of thirty-years, he had dismissed above seven hundred criminals in the manner which I have described; and that scarcely two out of twenty have returned. He shewed me a catalogue of all the unhappy sufferers, with the date of their departure from his house annexed; and a list of the offences for which they had been condemned: to which was added, a list of those who had returned in safety. I afterwards saw another list of these culprits, at the jail-keeper's at *Soura-Charta*, and found that they perfectly corresponded with each other, and with the different informations which I afterwards obtained.

I was present at some of these melancholy ceremonies, and desired different delinquents to bring with them some pieces of the wood, or a small branch, or some leaves of this wonderful tree. I have also given them silk cords, desiring them to measure its thickness. I never could procure more than two dry leaves that were picked up by one of them on his return; and all I could learn from him, concerning the tree itself, was, that it stood on a border of a rivulet, as described by the old Priest; that it was of a middling size; that five or six young trees of the same kind stood close by it; but that no other shrub or plant could be seen near it; and that the ground was of a brownish sand, full of stones, almost impracticable for travelling, and covered with dead bodies. After many conversations with the old Malayan priest, I questioned him about the first discovery, and asked his opinion of this dangerous tree; upon which he gave me the following answer:

" We are told in our new Alcoran, that, above an hundred years ago, the country
" around the tree was inhabited by a people strongly addicted to the sins of Sodom and
" Gomorrah; when the great prophet Mahomet determined not to suffer them to lead
" such detestable lives any longer, he applied to God to punish them: upon which God
" caused this tree to grow out of the earth, which destroyed them all, and rendered
" the country for ever uninhabitable."

Such was the Malayan opinion I shall not attempt a comment; but must observe, that all the Malayans consider this tree as an holy instrument of the great prophet to

punish the sins of mankind; and, therefore, to die of the poison of the Upas is generally considered among them as an honourable death. For that reason I also observed, that the delinquents, who were going to the tree, were generally dressed in their best apparel.

This however is certain, though it may appear incredible, that from fifteen to eighteen miles round this tree, not only no human creature can exist, but that, in that space of ground, no living animal of any kind has ever been discovered. I have also been assured by several persons of veracity, that there are no fish in the waters, nor has any rat, mouse, or any other vermin, been seen there; and when any birds fly so near this tree that the effluvia reaches them, they fall a sacrifice to the effects of the poison. This circumstance has been ascertained by different delinquents, who, in their return, have seen the birds drop down, and have picked them up *dead*, and brought them to the old ecclesiastic.

I will here mention an instance, which proves the fact beyond all doubt, and which happened during my stay at Java.

In 1775 a rebellion broke out among the subjects of the Massay, a sovereign prince, whose dignity is nearly equal to that of the Emperor. They refused to pay a duty imposed upon them by their sovereign, whom they openly opposed. The Massay sent a body of a thousand troops to disperse the rebels, and to drive them, with their families, out of his dominions. Thus four hundred families, consisting of above sixteen hundred souls, were obliged to leave their native country. Neither the Emperor nor the Sultan would give them protection, not only because they were rebels, but also through fear of displeasing their Neighbour, the Massay. In this distressful situation, they had no other resource than to repair to the uncultivated parts round the Upas, and requested permission of the emperor to settle there. Their request was granted, on condition of their fixing their abode not more than twelve or fourteen miles from the tree, in order not to deprive the inhabitants already settled there at a greater distance of their cultivated lands. With this they were obliged to comply; but the consequence was, that in less than two months their number was reduced to about three hundred. The chiefs of those who remained returned to the Massay, informed him of their losses, and intreated his pardon, which induced him to receive them again as subjects, thinking them sufficiently punished for their misconduct. I have seen and conversed with several of those who survived soon after their return. They all had the appearance of persons tainted with an infectious disorder; they looked pale and weak, and from the account which they gave of the loss of their comrades, and of the symptoms and circumstances which attended their dissolution, such as convulsions, and other signs of a violent death, I was fully convinced that they fell victims to the poison.

This violent effect of the poison at so great a distance from the tree, certainly appears surprising, and almost incredible: and especially, when we consider that it is possible for delinquents who approach the tree to return alive. My wonder, however, in a great measure, ceased, after I had made the following observations:

I have said before, that malefactors are instructed to go to the tree with the wind, and to return against the wind. When the wind continues to blow from the same quarter while the delinquent travels thirty, or six and thirty miles, if he be of a good constitution, he certainly survives. But what proves the most destructive is, that there is no

dependence on the wind in that part of the world for any length of time.—There are no regular land-winds; and the ſea-wind is not perceived there at all, the ſituation of the tree being at too great a diſtance, and ſurrounded by high mountains and uncultivated foreſts. Beſides, the wind there never blows a freſh regular gale, but is commonly merely a current of light, ſoft breezes, which paſs through the different openings of the adjoining mountains. It is alſo frequently difficult to determine from what part of the globe the wind really comes, as it is divided by various obſtructions in its paſſage, which eaſily change the direction of the wind, and often totally deſtroy its effects.

I, therefore, impute the diſtant effects of the poiſon, in a great meaſure, to the conſtant gentle winds in thoſe parts, which have not power enough to diſperſe the poiſonous particles. If high winds were more frequent and durable there, they would certainly weaken very much, and even deſtroy the obnoxious effluvia of the poiſon; but without them, the air remains infected and pregnant with theſe poiſonous vapours.

I am the more convinced of this, as the worthy eccleſiaſtic aſſured me, that a dead calm is always attended with the greateſt danger, as there is a continual perſpiration iſſuing from the tree, which is ſeen to riſe and ſpread in the air, like the putrid ſteam of a marſhy cavern.

Experiments made with the Gum *of the* UPAS-TREE.

IN the year 1776, in the month of February, I was preſent at the execution of thirteen of the Emperor's concubines, at *Soura-Charta*, who were convicted of infidelity to the Emperor's bed. It was in the forenoon, about eleven o'clock, when the fair criminals were led into an open ſpace within the walls of the Emperor's palace. There the judge paſſed ſentence upon them, by which they are doomed to ſuffer death by a lancet poiſoned with Upas. After this the Alcoran was preſented to them, and they were, according to the law of their great prophet Mahomet, to acknowledge and to affirm by oath, that the charges brought againſt them, together with the ſentence and their puniſhment, were fair and equitable. This they did, by laying their right hand upon the Alcoran, their left hands upon their breaſt, and their eyes lifted towards heaven; the judge then held the Alcoran to their lips, and they kiſſed it.

Theſe ceremonies over, the executioner proceeded on his buſineſs in the following manner:—Thirteen poſts, each about five feet high, had been previouſly erected. To theſe the delinquents were faſtened, and their breaſts ſtripped naked. In this ſituation they remained a ſhort time in continual prayers, attended by ſeveral prieſts, until a ſignal was given by the judge to the executioner; on which the latter produced an inſtrument, much like the ſpring lancet uſed by farriers for bleeding horſes. With this inſtrument, it being poiſoned with the gum of the Upas, the unhappy wretches were lanced in the middle of their breaſts, and the operation was performed upon them all in leſs than two minutes.

My aſtoniſhment was raiſed to the higheſt degree, when I beheld the ſudden effects of that poiſon, for in about five minutes after they were lanced they were taken with a *tremor* attended with a *ſubſultus tendinum*, after which they died in the greateſt agonies,

crying out to God and Mahomet for mercy. In ſixteen minutes by my watch, which I held in my hand, all the criminals were no more. Some hours after their death, I obſerved their bodies full of livid ſpots, much like thoſe of the *Petechiæ*, their faces ſwelled, their colour changed to a kind of blue, their eyes looked yellow, &c. &c.

About a fortnight after this, I had an opportunity of ſeeing ſuch another execution at Samarang. Seven Malayans were executed there with the ſame inſtrument, and in the ſame manner; and I found the operation in the poiſon, and the ſpots in their bodies, exactly the ſame.

Theſe circumſtances made me deſirous to try an experiment with ſome animals, in order to be convinced of the real effects of this poiſon; and as I had then two young puppies, I thought them the fitteſt objects for my purpoſe. I accordingly procured with great difficulty ſome grains of Upas. I diſſolved half a grain of that gum in a ſmall quantity of arrack, and dipped a lancet into it. With this poiſoned inſtrument I made an inciſion in the lower muſcular part of the belly in one of the puppies. Three minutes after it received the wound the animal began to cry out moſt piteouſly, and ran as faſt as poſſible from one corner of the room to the other. So it continued during ſix minutes, when all its ſtrength being exhauſted, it fell upon the ground, was taken with convulſions, and died in the eleventh minute. I repeated this experiment with two other puppies, with a cat and a fowl, and found the operation of the poiſon in all of them the ſame: none of theſe animals ſurvived above thirteen minutes.

I thought it neceſſary to try alſo the effect of the poiſon given inwardly, which I did in the following manner. I diſſolved a quarter of a grain of the gum in half an ounce of arrack, and made a dog of ſeven months old drink it. In ſeven minutes, a retching enſued, and I obſerved, at the ſame time, that the animal was delirious, as it ran up and down the room, fell on the ground, and tumbled about; then it roſe again, cried out very loud, and in about half an hour after was ſeized with convulſions, and died. I opened the body, and found the ſtomach very much inflamed, as the inteſtines were in ſome parts, but not ſo much as the ſtomach. There was a ſmall quantity of coagulated blood in the ſtomach; but I could diſcover no orifice from which it could have iſſued; and therefore ſuppoſed it to have been ſqueezed out of the lungs, by the animal's ſtraining while it was vomiting.

From theſe experiments I have been convinced that the gum of the Upas is the moſt dangerous and moſt violent of all vegetable poiſons; and I am apt to believe that it greatly contributes to the unhealthineſs of that iſland. Nor is this the only evil attending it: hundreds of the natives of Java, as well as Europeans, are yearly deſtroyed and treacherouſly murdered by that poiſon, either internally or externally. Every man of quality or faſhion has his dagger or other arms poiſoned with it; and in times of war the Malayans poiſon the ſprings and other waters with it; by this treacherous practice the Dutch ſuffered greatly during the laſt war, as it occaſioned the loſs of half their army. For this reaſon, they have ever ſince kept fiſh in the ſprings of which they drink the water, and ſentinels are placed near them, who inſpect the waters every hour, to ſee whether the fiſh are alive. If they march with an army or body of troops into an enemy's country, they always carry live fiſh with them, which they throw into the

water ſome hours before they venture to drink it; by which means they have been able to prevent their total deſtruction.

This account, I flatter myſelf, will ſatisfy the curioſity of my readers, and the few facts which I have related will be conſidered as a certain proof of the exiſtence of this pernicious tree, and its penetrating effects.

If it be aſked why we have not yet any more ſatisfactory accounts of this tree, I can only anſwer, that the object of moſt travellers to that part of the world conſiſts more in commercial purſuits than in the ſtudy of Natural Hiſtory and the advancement of Sciences. Beſides, Java is ſo univerſally reputed an unhealthy iſland, that rich travellers ſeldom make any long ſtay in it; and others want money, and generally are too ignorant of the language to travel, in order to make enquiries. In future, thoſe who viſit this iſland will now probably be induced to make it an object of their reſearches, and will furniſh us with a fuller deſcription of this tree.

I will therefore only add, that there exiſts alſo a ſort of Cajoe-Upas on the coaſt of Macaſſar, the poiſon of which operates nearly in the ſame manner, but is not half ſo violent or malignant as that of Java, and of which I ſhall likewiſe give a more circumſtantial account in a deſcription of that iſland.—*London Magazine.*

Another Account of the Boa Upas, *or* Poiſon-Tree *of* Macaſſer, *from an inaugural Diſſertation publiſhed by* Chriſt. Aejmelæus, *and approved by* Profeſſor Thunberg, *at* Upſal.

Doctor Aejmelæus firſt ſpeaks of poiſons in general, enumerating many virulent ones from the mineral and animal, as well as from the vegetable kingdoms of Nature. Of the firſt he mentions arſenical, mercurial, and antimonial preparations; amongſt the ſecond he mentions the poiſons of ſeveral ſerpents, fiſhes, and inſects; and amongſt the laſt the Curara on the bank of the Oronoko, and the Woorara on the banks of the Amazones, and many others. But he thinks the ſtrongeſt is that of a tree hitherto undeſcribed, known by the name of Boa Upas, which grows in many of the warmer parts of India, principally in the iſlands of Java, Sumatra, Borneo, Bali, Macaſſer, and Celebes.

Rumphius teſtifies concerning this Indian poiſon, that it was more terrible to the Dutch than any warlike inſtrument; it is by him ſtyled Arbor toxicaria, and mentions two ſpecies of it, which he terms male and female; and deſcribes the tree as having a thick trunk, with ſpreading branches, covered with a rough dark bark. The wood, he adds, is very ſolid, of a pale yellow, and variegated with black ſpots, but the fructification is yet unknown.

Profeſſor Thunberg ſuppoſes the Boa Upas to be a Ceſtrum, or a tree of the ſame natural family; and deſcribes a Ceſtrum of the Cape of Good Hope, the juice of which the Hottentots mix with the venom of a certain ſerpent, which is ſaid to increaſe the deleterious quality of them both.

The Boa Upas tree is eaſily recogniſed at a diſtance, being always ſolitary, the ſoil around it being barren, and as it were burnt up; the dried juice is dark brown, liqui-

fying by heat, like other refins. It is collected with the greateft caution, the perfon having his head, hands, and feet carefully covered with linen, that his whole body may be protected from the vapour as well as from the droppings of the tree. No one can approach fo near as to gather the juice, hence they fupply bamboos, pointed like a fpear, which they thruft obliquely, with great force, into the trunk; the juice oozing out gradually fills the upper joint; and the nearer the root the wound is made, the more virulent the poifon is fuppofed to be. Sometimes upwards of twenty reeds are left fixed in the tree for three or four days, that the juice may collect and harden in the cavities; the upper joint of the reed is then cut off from the remaining part, the concreted juice is formed into globules or fticks, and is kept in hollow reeds, carefully clofed, and wrapped in tenfold linen. It is every week taken out to prevent its becoming mouldy, which fpoils it. The deleterious quality appears to be volatile, fince it lofes much of its power in the time of one year, and in a few years become totally effete.

The vapour of the tree produces numbnefs and fpafms of the limbs, and if any one ftands under it bare-headed, he lofes his hair; and if a drop falls on him, violent inflammation enfues. Birds which fit on the branches a fhort time, drop down dead, and can even with difficulty fly over it; and not only no vegetables grow under it, but the ground is barren a ftone caft around it.

A perfon wounded by a dart poifoned with this juice feels immediately a fenfe of heat over his whole body, with great vertigo, to which death foon fucceeds. A perfon wounded with the Java poifon was affected with tremor of the limbs, and ftarting of the tendons in five minutes, and died in lefs than fixteen minutes, with marks of great anxiety; the corpfe, in a few hours, was covered with petechial fpots, the face became tumid and lead-coloured, and the white part of the eye became yellow.

The natives try the ftrength of their poifon by a fingular teft; fome of the expreffed juice of the root of Amomum Zerumbet is mixed with a little water, and a bit of the poifonous gum or refin is dropped into it; an effervefcence inftantly takes place, by the violence of which they judge of the ftrength of the poifon.—What air can be extricated during this effervefcence?—This experiment is faid to be dangerous to the operator.

As the juice is capable of being diffolved in arrack, and is thence fuppofed to be principally of a refinous nature, the Profeffor does not credit that fountains have been poifoned with it.

This poifon has been employed as a punifhment for capital crimes in Macaffer and other iflands; in thofe cafes fome experiments have been made, and when a finger only had been wounded with a dart, the immediate amputation of it did not fave the criminal from death.

The poifon from what has been termed the female tree, is lefs deleterious than the other, and has been ufed chiefly in hunting; the carcafes of animals thus deftroyed are eaten with impunity. The poifon-juice is faid to be ufed externally as a remedy againft other poifons, in the form of a plafter; alfo to be ufed internally for the fame purpofe;

and is believed to alleviate the pain, and extract the poiſon of venomous inſects ſooner than any other application.

The author concludes that theſe accounts have been exaggerated by Mahomedan prieſts, who have perſuaded their followers that the Prophet Mahomet planted this noxious tree as a puniſhment for the ſins of mankind.

An abſtract of this Diſſertation of C. Aejmelæus is given in Dr. Duncan's Medical Commentaries for the Year 1790, Decad. 2d. Vol. V.

Fairy-ſcene from Mr. Mundy's Needwood Foreſt. Referred to in Canto IV. l. 35.

HERE, ſeen of old, the *elfin* race
With ſprightly vigils mark'd the place;
Their gay proceſſions charm'd the ſight,
Gilding the lucid noon of night;
Or, when obſcure the midnight hour,
With glow-worm lantherns hung the bower,
—Hark!—the ſoft lute!—along the green
Moves with majeſtic ſtep the QUEEN!
Attendant Fays around her throng,
And trace the dance or raiſe the ſong;
Or touch the ſhrill reed, as they trip,
With finger light and ruby lip.

High, on her brow ſublime, is borne
One ſcarlet woodbine's tremulous horn;
A gaudy Bee-bird's* triple plume
Sheds on her neck its waving gloom;
With ſilvery goſſamer entwin'd
Stream the luxuriant locks behind.
Thin folds of tangled network break
In airy waves adown her neck;—
Warp'd in his loom, the ſpider ſpread
The far-diverging rays of thread,
Then round and round with ſhuttle fine
Inwrought the undulating line;—
Scarce hides the woof her boſom's ſnow,
One pearly nipple peeps below.

* The *humming-bird.*

One roſe-leaf forms her crimſon veſt,
The looſe edge croſſes o'er her breaſt;
And one tranſlucent fold, that fell
From the tall lily's ample bell,
Forms with ſweet grace her ſnow-white train,
Flows, as ſhe ſteps, and ſweeps the plain.
Silence and Night inchanted gaze,
And Heſper hides his vanquiſh'd rays!—

Now the waked reed-finch ſwells his throat,
And night-larks trill their mingled note:
Yet huſh'd in moſs with writhed neck
The blackbird hides his golden beak;
Charm'd from his dream of love, he wakes,
Opes his gay eye, his plumage ſhakes,
And, ſtretching wide each ebon wing,
Firſt in low whiſpers tries to ſing;
Then ſounds his clarion loud, and thrills
The moon-bright lawns, and ſhadowy hills.
Silent the choral Fays attend,
And then their ſilver voices blend,
Each ſhining thread of ſound prolong,
And weave the magic woof of ſong.
Pleaſed Philomela takes her ſtand
On high, and leads the Fairy band,
Pours ſweet at intervals her ſtrain,
And guides with beating wing the train.
Whilſt interrupted Zephyrs bear
Hoarſe murmurs from the diſtant wear;
And at each pauſe is heard the ſwell
Of Echo's ſoft ſymphonious ſhell.

CATALOGUE OF THE POETIC EXHIBITION.

CANTO I.

CANTO II.

CANTO III.

CANTO IV.

CONTENTS OF THE NOTES.

Index of the Names of the Plants.

Directions to the Binder.

Please to place the print of Flora and Cupid opposite to the Title page.

The two plates with numbers I. to XXIV. to face each other at the end of the preface.

The print of Meadia opposite to p. 6.
Gloriosa, opposite p. 14.
Dionæa, p. 15.
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Hedysarum, p. 168.
Apocynum, p. 182.